

SEPTEMBER  
(SEPTEMBER-OCTOBER)  
1944

# CHEMICAL PREVIEW

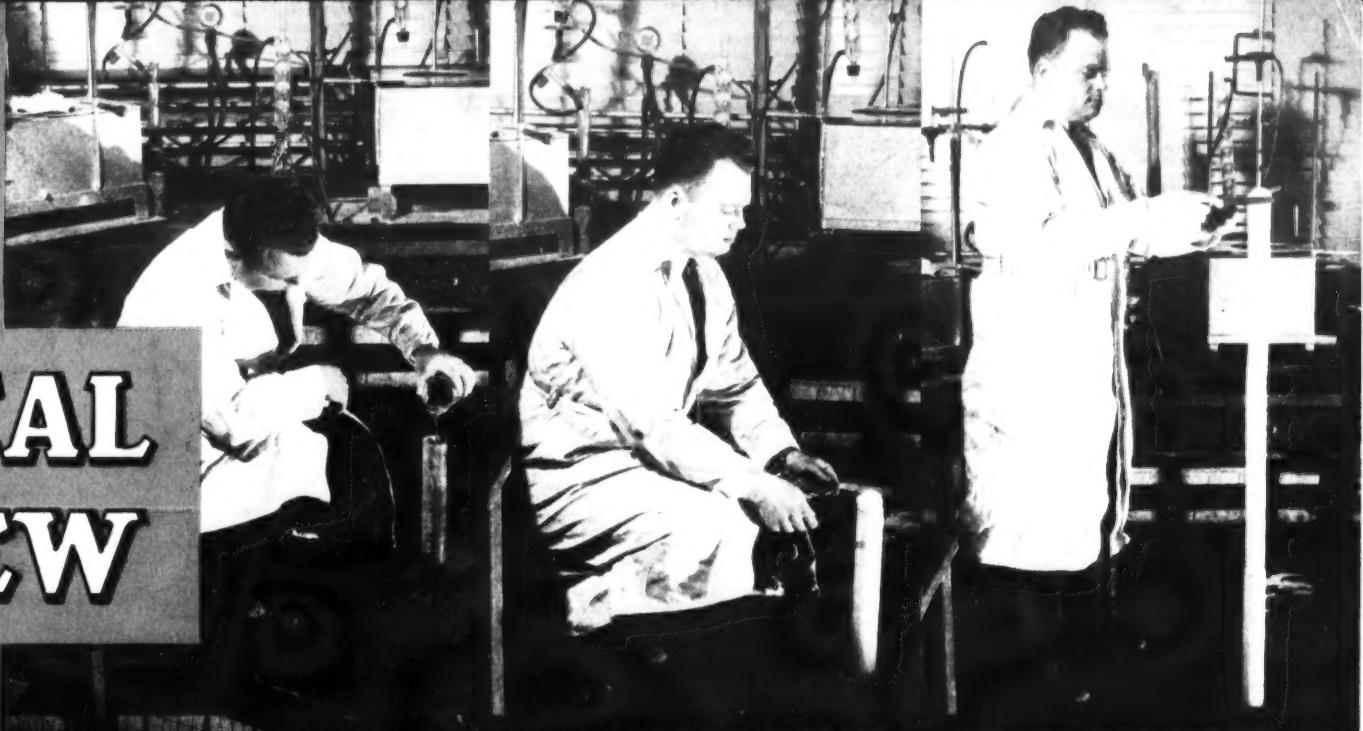
## NEW

- ★ PROCESSES
- ★ MATERIALS
- ★ MACHINERY
- ★ PRODUCTS
- ★ APPLICATIONS

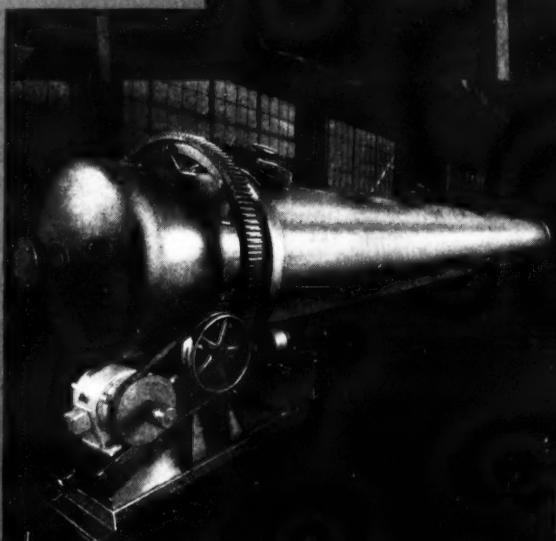
Latest developments in chemical process manufacturing...for engineers, chemists and executives.

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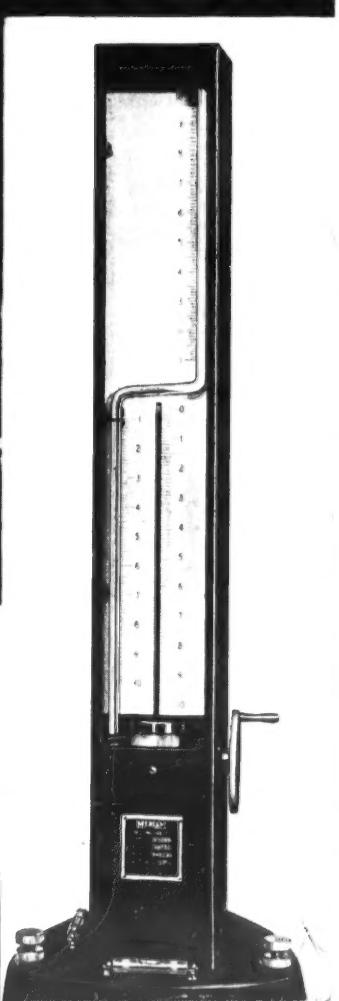
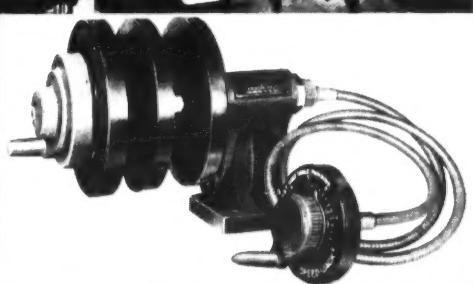
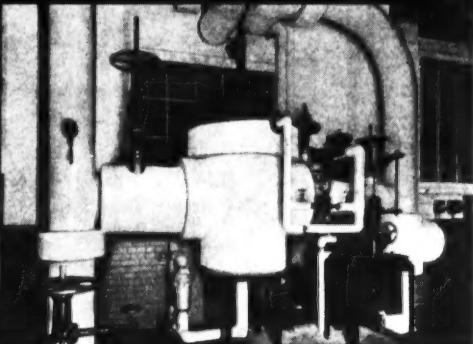
Plastic foam material, lighter and lower in heat conductivity than rock wool, glass or cork, foams and expands in a few minutes to 30 times original mixture, cures without use of heat. Wide applications, such as insulation, indicated



Rotating drum for propagation of Penicillin. 40 ins. O.D. x 37 ft., all welded construction, applicable to other materials



Pre-testing fan rotors at high speed with vacuum test pit in laboratory. Operator is about to start vacuum pump



Cartridge type desuperheater with reducing valve station, pressure regulator and temperature control

Micromanometer for checking, calibrating instruments permits readings to + or - 0.001 inches of water pressure

# Now Penicillin!



% Proportioners, Inc. % takes pride in the part it has played in supplying equipment for the Penicillin program. To meet other war emergencies, % Proportioners, Inc. % has also successfully engineered equipment and methods for production of High Octane Gasolines, Synthetic Rubber and Plastics, as well as Insecticides for disease prevention in jungle areas; it has also supplied thousands of portable units for purification of drinking water on the fighting fronts and hypochlorinators for sanitation and sterilization.

Send for latest Bulletins

The experience gained in wartime will soon be available for solving post-war reconversion and continuous production problems.

As a pioneer in constant rate and flow proportional treating and blending, % Proportioners, Inc. % has wide experience in applying automatic methods to industrial processing.

Modernize your plant with % Proportioners %; increase your production, improve your product.

Our engineers will gladly make recommendations.

## % PROPORTIONERS, INC. %

WRITE TO %PROPORTIONERS, INC. % 41 CODDING ST. PROVIDENCE 1, RHODE ISLAND

### That's Interesting

#### Metal Spraying Restores Bottling Machine Parts

A major manufacturer of bottling machinery and bottle caps is solving some of parts replacement problems for its customers by means of metal spraying equipment. Spider shafts, crowner shafts and crowner heads are restored. The crowner heads which properly seal the top of the bottle by wiping the metal cap over the corking ring are made of manganese bronze and when new weigh six pounds. Manganese castings for other than war use are not available but suitable wire for spraying can be had. As little as one pound of wire restores a crowning head to service and similar application with other wire is restoring similar parts. (Metallizing Engineering Co. Inc.)

#### Storing Tube Cleaner Motors

An idea for storing tube cleaner motors in a bath of oil is described in house organ of tube cleaner manufacturer. The idea consists simply of cutting off a small section of tube and welding it on a base. It makes an excellent receptacle for tube cleaner motor when not in use. (Elliott Co.)

#### Testing Penicillin

Rabbits and mice are used to test penicillin. If the temperature of rabbits in which penicillin has been injected does not rise it is known that the penicillin is free from substances producing fever. Mice are used to determine whether the batch of penicillin has been contaminated.

#### 1,000,000,000 Pounds of Cheese

Cheese made in factories in this country in 1941 totaled 1,000,000,000. The state of Wisconsin alone was producer of half of this vast quantity.

#### Synthetic Curtains for Machines Protect Workers

Splash curtains for the protection of workers are now being made of a transparent rubber like synthetic sheets (Compar-Resistoflex Corp.) which permits a clear view of the performance of machinery at all times. The strength of this vinyl resin derivative that is immune to oils and solvents is indicated in its ability to withstand the impact of fluids from broken hydraulic and pressure lines. The curtains are tailored to exact fits for any machine.

#### Drunken Oysters

Oyster shucking time can be reduced thirty-five per cent by getting the oysters drunk on carbonated water reports authorities of the Fish & Wildlife Service. Laboratory experiments support this. A shucking novice opened 150 shells in twenty minutes during one experiment. The oysters are soaked in carbonated water for five minutes. This relaxes their muscles and the shells are easily opened. The carbonated water does not effect the palatability of the bivalve. (Pathfinder).

(Continued on page 5)

For more information on product at left, specify CP A100 . . . see information request blank between pages 2-3.

## Check Below, For More Product Information

EVERY PRODUCT DESCRIBED IN THIS ISSUE IS LISTED BELOW . . . Check the items that interest you. Mail to publisher . . . information comes to you direct, without obligation.

If you wish

✓ Key	Product	✓ Key	Product	✓ Key	Product	✓ Key	Product
<input type="checkbox"/> A100	Proportioning Pumps	<input type="checkbox"/> A158	Electrical Instruments	<input type="checkbox"/> A217	Time Switch	<input type="checkbox"/> A276	Sieve Generators
<input type="checkbox"/> A101	Univolt Rectifiers	<input type="checkbox"/> A159	Voltage Breakdown Tester	<input type="checkbox"/> A218	Reducing Valves	<input type="checkbox"/> A277	Ball Mills & Blenders
<input type="checkbox"/> A102	Glass Line Units	<input type="checkbox"/> A160	Combustion Tube Furnaces	<input type="checkbox"/> A219	Steam Traps	<input type="checkbox"/> A278	Metal Conveyor Belts
<input type="checkbox"/> A103	Diaphragm Slurry Pumps	<input type="checkbox"/> A161	Gauges	<input type="checkbox"/> A220	Bag Filling Machine	<input type="checkbox"/> A279	Space Saving Coupling
<input type="checkbox"/> A104	Electric Furnace Controller	<input type="checkbox"/> A162	Temperature Instruments	<input type="checkbox"/> A221	Liquid Level Controls	<input type="checkbox"/> A280	Open Shaft Pumps
<input type="checkbox"/> A105	Conveyors	<input type="checkbox"/> A163	Electronic Principle Controls	<input type="checkbox"/> A222	Compressed Air Dryers	<input type="checkbox"/> A281	Carton Stiches
<input type="checkbox"/> A106	Processing Equipment	<input type="checkbox"/> A164	Pantometers	<input type="checkbox"/> A223	Laboratory Glassware	<input type="checkbox"/> A282	Synthetic Pipe & Fittings
<input type="checkbox"/> A107	Magnetic Separator Manual	<input type="checkbox"/> A165	Tank Gauge	<input type="checkbox"/> A224	Rotary Pumps	<input type="checkbox"/> A283	Bag Closure
<input type="checkbox"/> A108	Filter Systems	<input type="checkbox"/> A166	Needle Pyrometers	<input type="checkbox"/> A225	Semi-Metallic Packings	<input type="checkbox"/> A284	Power Shovel
<input type="checkbox"/> A109	Screws	<input type="checkbox"/> A167	Blow-Off Valves	<input type="checkbox"/> A226	V-Belts	<input type="checkbox"/> A285	Valves
<input type="checkbox"/> A110	Desuperheaters	<input type="checkbox"/> A168	Transformer Case Attachment	<input type="checkbox"/> A227	Corrosion-Resistant Equipment	<input type="checkbox"/> A286	Rotary Disc Mill
<input type="checkbox"/> A111	Electronically Controlled Pump	<input type="checkbox"/> A169	pH Equipment	<input type="checkbox"/> A228	Wrapping Machines	<input type="checkbox"/> A287	Lifters
<input type="checkbox"/> A112	Processing Equipment	<input type="checkbox"/> A170	Well-type Manometer	<input type="checkbox"/> A229	Heavy Duty Heaters	<input type="checkbox"/> A288	Screw Conveyor
<input type="checkbox"/> A113	Cooling Towers	<input type="checkbox"/> A171	Midsize Thermometers	<input type="checkbox"/> A230	Laboratory Ovens	<input type="checkbox"/> A289	Belt Idlers
<input type="checkbox"/> A114	Glass Fibers	<input type="checkbox"/> A172	Panelboard Reconversion	<input type="checkbox"/> A231	Plasmatic Materials Handling	<input type="checkbox"/> A290	Valves, Stainless Steel
<input type="checkbox"/> A115	Chemical Feeders	<input type="checkbox"/> A173	Air Velocity Meter	<input type="checkbox"/> A232	Dust Collectors	<input type="checkbox"/> A291	Steel Casting
<input type="checkbox"/> A116	Muffle Furnace	<input type="checkbox"/> A174	Laboratory Equipment	<input type="checkbox"/> A233	Sectional Heat Exchangers	<input type="checkbox"/> A292	Small Capacity Pump
<input type="checkbox"/> A117	Turbine Pumps	<input type="checkbox"/> A175	Liquid Level Controls	<input type="checkbox"/> A234	Flow Alarm	<input type="checkbox"/> A293	Acid-Proof Tower
<input type="checkbox"/> A118	High Pressure Pumps	<input type="checkbox"/> A176	Scales	<input type="checkbox"/> A235	pH Recorder	<input type="checkbox"/> A294	Aluminum Foil
<input type="checkbox"/> A119	Kneading Machine	<input type="checkbox"/> A177	Tachometers	<input type="checkbox"/> A236	Dryers	<input type="checkbox"/> A295	Air Hydraulic Press
<input type="checkbox"/> A120	Vertical Sand Pump	<input type="checkbox"/> A178	Pressure Regulation	<input type="checkbox"/> A237	Conveyors	<input type="checkbox"/> A296	Clarification Filters
<input type="checkbox"/> A121	Motors & Controls	<input type="checkbox"/> A179	Furnace	<input type="checkbox"/> A238	Liquid Temp. Control	<input type="checkbox"/> A297	Fire Extinguishers
<input type="checkbox"/> A122	Insulation	<input type="checkbox"/> A180	Plastic Cork Coating	<input type="checkbox"/> A239	Worm Gear Unit	<input type="checkbox"/> A298	Centrifugal & Spur Gear Pumps
<input type="checkbox"/> A123	Mechanical Ammeter	<input type="checkbox"/> A181	Chemicals	<input type="checkbox"/> A240	Plastic Instrument Chart	<input type="checkbox"/> A299	Hydraulic Fittings
<input type="checkbox"/> A124	Recording Instruments	<input type="checkbox"/> A182	Sealant	<input type="checkbox"/> A241	Resistors & Rheostats	<input type="checkbox"/> A300	Rubber Gloves
<input type="checkbox"/> A125	Laboratory Furniture	<input type="checkbox"/> A183	Sealing Compound	<input type="checkbox"/> A242	Electrical Fittings	<input type="checkbox"/> A301	Truck Type Tray Dryers
<input type="checkbox"/> A126	Gas Proportioner	<input type="checkbox"/> A184	Chlorosulfonic Acid	<input type="checkbox"/> A243	Lubricating Equipment	<input type="checkbox"/> A302	Vibrating Screens
<input type="checkbox"/> A127	Vacuum Test Pit	<input type="checkbox"/> A185	Block Insulation	<input type="checkbox"/> A244	Trucks & Trailers	<input type="checkbox"/> A303	Safety Shoes
<input type="checkbox"/> A128	Laboratory Computergram	<input type="checkbox"/> A186	Corrosion Resistant Equipment	<input type="checkbox"/> A245	Mill, Colloid Laboratory	<input type="checkbox"/> A304	Butterfly Valves
<input type="checkbox"/> A129	Conductivity Controller	<input type="checkbox"/> A187	Floor Mounting	<input type="checkbox"/> A246	Centralized Lubrication	<input type="checkbox"/> A305	Penicillin Drums
<input type="checkbox"/> A130	Electronic Timers	<input type="checkbox"/> A188	Aluminum Ware	<input type="checkbox"/> A247	Belt Conveyor Idler	<input type="checkbox"/> A306	Barrel Truck
<input type="checkbox"/> A131	Centrifugals	<input type="checkbox"/> A189	Sodium Iron pyrophosphate	<input type="checkbox"/> A248	Flanges	<input type="checkbox"/> A307	Pulverizers
<input type="checkbox"/> A132	Refractometers	<input type="checkbox"/> A190	Methylidethanolamine	<input type="checkbox"/> A249	Industrial Fabrics	<input type="checkbox"/> A308	Compressed Air Cleaners
<input type="checkbox"/> A133	Micromonometer	<input type="checkbox"/> A191	pH Buffer Tablets	<input type="checkbox"/> A250	Industrial Trucks	<input type="checkbox"/> A309	Lighting Equipment
<input type="checkbox"/> A134	Controllers & Recorders	<input type="checkbox"/> A192	Water De-ionizing Units	<input type="checkbox"/> A251	Sacking Scales	<input type="checkbox"/> A310	High Frequency Generators
<input type="checkbox"/> A135	pH Meter	<input type="checkbox"/> A193	Cenum	<input type="checkbox"/> A252	Glass Filter Medium	<input type="checkbox"/> A311	Neoprene Gloves
<input type="checkbox"/> A136	Thermowells	<input type="checkbox"/> A194	Laboratory Furnace	<input type="checkbox"/> A253	Diaphragm Valves	<input type="checkbox"/> A312	Dry Materials Mixer
<input type="checkbox"/> A137	Thermowells	<input type="checkbox"/> A195	Corrosion-proof Paint	<input type="checkbox"/> A254	Special Purpose Hogs	<input type="checkbox"/> A313	Spray Nozzles
<input type="checkbox"/> A138	Densitometers	<input type="checkbox"/> A196	Electronics & Radio	<input type="checkbox"/> A255	Bog Closures	<input type="checkbox"/> A314	Safety Goggles
<input type="checkbox"/> A139	Laboratory Furniture	<input type="checkbox"/> A197	OA Beam	<input type="checkbox"/> A256	Pumcups	<input type="checkbox"/> A315	Cloth Tape
<input type="checkbox"/> A140	Motor Starters	<input type="checkbox"/> A198	Dehydrated Wetting Agent	<input type="checkbox"/> A257	Dust Collectors	<input type="checkbox"/> A316	Atomizing Nozzles
<input type="checkbox"/> A141	Multi-contact Timers	<input type="checkbox"/> A199	Magnesium Metaphosphate	<input type="checkbox"/> A258	Safety Pilling Com	<input type="checkbox"/> A317	Laboratory Furnaces
<input type="checkbox"/> A142	CO <sub>2</sub> Indicator	<input type="checkbox"/> A200	Benzene Sulfenochloride	<input type="checkbox"/> A259	Fork Lift Trucks	<input type="checkbox"/> A318	Pressure Filters
<input type="checkbox"/> A143	pH Control Handbook	<input type="checkbox"/> A201	Pipe Joint Compound	<input type="checkbox"/> A260	Petroleum Oil Extract	<input type="checkbox"/> A319	Pumps
<input type="checkbox"/> A144	Revers Flow Damper	<input type="checkbox"/> A202	Moisture Tester	<input type="checkbox"/> A261	Water Stills	<input type="checkbox"/> A320	Shredding Machine
<input type="checkbox"/> A145	Pressure Regulators	<input type="checkbox"/> A203	Laboratory Furniture	<input type="checkbox"/> A262	Breakers & Conveyors	<input type="checkbox"/> A321	Chemical Porcelain
<input type="checkbox"/> A146	Abraser	<input type="checkbox"/> A204	Atmospheric Control Cabinets	<input type="checkbox"/> A263	Industrial Ovens	<input type="checkbox"/> A322	Industrial Trucks
<input type="checkbox"/> A147	Moisture Gauges	<input type="checkbox"/> A205	Anti-oxidant	<input type="checkbox"/> A264	Steam Traps	<input type="checkbox"/> A323	Stampings
<input type="checkbox"/> A148	Sub-zero Temp. Control	<input type="checkbox"/> A206	Anti-corrosion Coating	<input type="checkbox"/> A265	Heat Exchanger	<input type="checkbox"/> A324	Pumcups
<input type="checkbox"/> A149	Time Delay Relay	<input type="checkbox"/> A207	Adhesive Formulas	<input type="checkbox"/> A266	Adjustable Speed Drive	<input type="checkbox"/> A325	Gas Mask
<input type="checkbox"/> A150	Wet Test Abreast Table	<input type="checkbox"/> A208	Plasticizer and resin	<input type="checkbox"/> A267	Concrete Mixers	<input type="checkbox"/> A326	Rolls
<input type="checkbox"/> A151	Water Baths	<input type="checkbox"/> A209	Carbon & Graphite Products	<input type="checkbox"/> A268	Bog Holders	<input type="checkbox"/> A327	Vibrating Screens
<input type="checkbox"/> A152	Solenoid Valves	<input type="checkbox"/> A210	Fluidometer	<input type="checkbox"/> A269	Portable Elevators	<input type="checkbox"/> A328	Flexible Coupling
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<input type="checkbox"/> A154	Purity Meters	<input type="checkbox"/> A212	Thermometers	<input type="checkbox"/> A271	Fastenings	<input type="checkbox"/> A330	Flexible Couplings
<input type="checkbox"/> A155	Temperature Control	<input type="checkbox"/> A213	Lift Trucks	<input type="checkbox"/> A272	Book — Inorganic Chemistry	<input type="checkbox"/> A331	Conical Mill
<input type="checkbox"/> A156	Compressor Controller	<input type="checkbox"/> A214	Autoclave	<input type="checkbox"/> A273	Industrial Gloves	<input type="checkbox"/> A332	Vacuum Pumps
<input type="checkbox"/> A157	Valves	<input type="checkbox"/> A215	Liquid Meters	<input type="checkbox"/> A274	Lift Trucks	<input type="checkbox"/> A333	Spray Nozzles
		<input type="checkbox"/> A216	Rotameter	<input type="checkbox"/> A275	Centrifugal Pumps		

## MORE PRODUCT INFORMATION

Check products which interest you, mail to us.

Mail to CHEMICAL PREVIEW, 737 N. Michigan Ave., Chicago 11, Illinois

## If You Wish More Information On Products—

See Reverse Side of this Sheet — Be Sure To Give Your Address

(Listing of products continued)

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<input type="checkbox"/> A325	Lighting Equipment	<input type="checkbox"/> A378	Air Cooled Compressors	<input type="checkbox"/> A421	Spectrum Light Bulbs	<input type="checkbox"/> A485	Oil Field Pump
<input type="checkbox"/> A326	Water Conditioner	<input type="checkbox"/> A379	Rechargeable Batteries	<input type="checkbox"/> A422	Electric Hoists	<input type="checkbox"/> A486	Protective Skin Creams
<input type="checkbox"/> A328	Worm Gear Reduction Unit	<input type="checkbox"/> A380	Feed Oiler	<input type="checkbox"/> A423	Conveyor Buckets	<input type="checkbox"/> A487	Tube Cleaner
<input type="checkbox"/> A338	Scales	<input type="checkbox"/> A381	Heat Treating Equipment	<input type="checkbox"/> A424	Fire Extinguisher	<input type="checkbox"/> A488	Dust Collectors
<input type="checkbox"/> A339	Overhead Handling	<input type="checkbox"/> A382	Electronic Welder	<input type="checkbox"/> A425	Corn Reference Book	<input type="checkbox"/> A489	Cleaner
<input type="checkbox"/> A340	Variable Speed Transmission	<input type="checkbox"/> A383	Conveyor Chains	<input type="checkbox"/> A426	Lift & Tilting Truck	<input type="checkbox"/> A470	Adhesives
<input type="checkbox"/> A341	Bit Level Controls	<input type="checkbox"/> A384	Processing Equipment	<input type="checkbox"/> A427	V-Belts	<input type="checkbox"/> A471	Humidity Control
<input type="checkbox"/> A342	Concrete Mixers	<input type="checkbox"/> A385	Steel Flooring	<input type="checkbox"/> A428	Electrons	<input type="checkbox"/> A472	Horizontal-Plate Filter
<input type="checkbox"/> A343	Masonry Saws	<input type="checkbox"/> A386	Prefabricated Pipe Units	<input type="checkbox"/> A429	Alloy Casting Services	<input type="checkbox"/> A473	Stainless Steel Valves
<input type="checkbox"/> A344	Wire Cloth	<input type="checkbox"/> A387	Chemical Respirator	<input type="checkbox"/> A430	Dust Collectors	<input type="checkbox"/> A474	Scales
<input type="checkbox"/> A345	Vacuum Diffusion Pump	<input type="checkbox"/> A388	Powder Extinguisher	<input type="checkbox"/> A431	Miner-type Kettle	<input type="checkbox"/> A475	Gas Meters
<input type="checkbox"/> A346	Processing Equipment	<input type="checkbox"/> A389	Lubricating Equipment	<input type="checkbox"/> A432	Circuit Breaker	<input type="checkbox"/> A476	Camouflage Enamel for Camo
<input type="checkbox"/> A347	Process Pumps	<input type="checkbox"/> A390	Melting & Dipping Tank	<input type="checkbox"/> A433	Floor Patching Material	<input type="checkbox"/> A477	Filling Compound
<input type="checkbox"/> A348	Dial Selector	<input type="checkbox"/> A391	Drive Equipment	<input type="checkbox"/> A434	Carbon Pumps	<input type="checkbox"/> A478	Alloy Fabrication
<input type="checkbox"/> A349	Conveyor Equipment	<input type="checkbox"/> A392	Speed Reducers	<input type="checkbox"/> A435	General Purpose Motor	<input type="checkbox"/> A479	Alloy Fabrication
<input type="checkbox"/> A350	Oil Filters	<input type="checkbox"/> A393	Steam Trap	<input type="checkbox"/> A436	Humidifier	<input type="checkbox"/> A480	Auger Packer
<input type="checkbox"/> A351	Plant Equipment & Construction	<input type="checkbox"/> A394	Pumps	<input type="checkbox"/> A437	Job Rolling Machines	<input type="checkbox"/> A481	Barrel-type Plater
<input type="checkbox"/> A352	Bag Closets	<input type="checkbox"/> A395	Chains	<input type="checkbox"/> A438	Conveyor Idlers	<input type="checkbox"/> A482	Rotary Pressure Joint
<input type="checkbox"/> A353	Processing Equipment	<input type="checkbox"/> A396	Globe Type Valve	<input type="checkbox"/> A439	Stainless Steel	<input type="checkbox"/> A483	Lubricated Valves
<input type="checkbox"/> A354	Portable Conveyor	<input type="checkbox"/> A397	Pressure Filters	<input type="checkbox"/> A440	Neoprene Gloves	<input type="checkbox"/> A484	Vacuum Pumps
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<input type="checkbox"/> A356	Labels	<input type="checkbox"/> A399	Glass Piping	<input type="checkbox"/> A442	Wind-Up Machine	<input type="checkbox"/> A486	Conveyor-Elevators
<input type="checkbox"/> A357	Cathodic Rust Prevention	<input type="checkbox"/> A400	Stainless-steel Steel	<input type="checkbox"/> A443	Intra-red Ovens	<input type="checkbox"/> A487	Poly Phosphate Compactor
<input type="checkbox"/> A358	Swivel Joints	<input type="checkbox"/> A401	Cabinet Ovens	<input type="checkbox"/> A444	Pumps	<input type="checkbox"/> A488	Spout-type Magnets
<input type="checkbox"/> A359	V-Belts	<input type="checkbox"/> A402	Blast Sections & Unit Heaters	<input type="checkbox"/> A445	Corrosion-resistant Alloys	<input type="checkbox"/> A489	Cold Padding Glue
<input type="checkbox"/> A360	Industrial Gloves	<input type="checkbox"/> A403	Air Separator	<input type="checkbox"/> A446	Cemented Carbides	<input type="checkbox"/> A490	Allyl Resin Monomers
<input type="checkbox"/> A361	Platform Trucks	<input type="checkbox"/> A404	Heat Reclaim System	<input type="checkbox"/> A447	Wood Fuel Stokers	<input type="checkbox"/> A491	Dust Collectors
<input type="checkbox"/> A362	Agitators	<input type="checkbox"/> A405	Barrel Trucks	<input type="checkbox"/> A448	All Purpose Intra Red Unit	<input type="checkbox"/> A492	Electric Water Stills
<input type="checkbox"/> A363	Rotary Air Motor	<input type="checkbox"/> A406	Magnets	<input type="checkbox"/> A449	Vibrating Conveyors	<input type="checkbox"/> A493	Filter Press
<input type="checkbox"/> A364	Cat's-Eye	<input type="checkbox"/> A407	Data on Amines	<input type="checkbox"/> A450	Adjustable Threader	<input type="checkbox"/> A494	Chemical Pumps
<input type="checkbox"/> A365	Inspection Lights	<input type="checkbox"/> A408	Handling Buckets	<input type="checkbox"/> A451	Work Table & Rack	<input type="checkbox"/> A495	Brass Globe Valves
<input type="checkbox"/> A366	Steam Jet Ejectors	<input type="checkbox"/> A409	Flame Arrestors	<input type="checkbox"/> A452	Centrifugal Pump	<input type="checkbox"/> A496	Filter Press Closer
<input type="checkbox"/> A367	Electric Heating Unit	<input type="checkbox"/> A410	Dewatering Press	<input type="checkbox"/> A453	Lubrication System	<input type="checkbox"/> A497	Flexible Hose & Assemblies
<input type="checkbox"/> A368	Platform Trucks	<input type="checkbox"/> A411	Hole Cutters	<input type="checkbox"/> A454	Safety Valve Interlock	<input type="checkbox"/> A498	Turbines
<input type="checkbox"/> A369	Midsize Heaters	<input type="checkbox"/> A412	Lathe	<input type="checkbox"/> A455	Vacuum Pumps	<input type="checkbox"/> A499	Lifting Magnets
<input type="checkbox"/> A370	Filter Sheets	<input type="checkbox"/> A413	Fluorescent Fixtures	<input type="checkbox"/> A456	2 Fingers Compensating Chuck	<input type="checkbox"/> A500	Fence Patch
<input type="checkbox"/> A371	Maneuveratory Materials	<input type="checkbox"/> A414	Rotating Plunger Pump	<input type="checkbox"/> A457	Waterlog Sprinklers	<input type="checkbox"/> A501	Vacuum Gauges
<input type="checkbox"/> A372	Pumps	<input type="checkbox"/> A415	Dust Collectors	<input type="checkbox"/> A458	Vacuum Pumps	<input type="checkbox"/> A502	Feeders-Vibrators
<input type="checkbox"/> A373	Removable Stickers	<input type="checkbox"/> A416	Plastic Pipe, Tubing, Fittings	<input type="checkbox"/> A459	Blowers	<input type="checkbox"/> A503	Casters
<input type="checkbox"/> A374	Pipe Tools	<input type="checkbox"/> A417	Pumps	<input type="checkbox"/> A460	Slide & Butterfly Valves	<input type="checkbox"/> A504	Cover Chem. Porcelain Valves
<input type="checkbox"/> A375	Rolls	<input type="checkbox"/> A418	Safety Mats	<input type="checkbox"/> A461	Steel Strapping	<input type="checkbox"/> A505	4th
<input type="checkbox"/> A376	Power Shovel	<input type="checkbox"/> A419	Multiple Outlet Gate	<input type="checkbox"/> A462	Screw Conveyor	<input type="checkbox"/> A506	
				<input type="checkbox"/> A463	Liquid-Gas Separator		

Please send information requested to:

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Title .....

(Please give the firm name)

Firm .....

Street Address .....

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Mail to CHEMICAL PREVIEW, 737 N. Michigan Ave., Chicago 11, Illinois



# 83 O.D.S. PUMPS



... from one purchaser

We'd like to tell you what these pumps are to handle but we can't. Military secret! But we can tell you that there are several sizes of O.D.S. Pumps involved in this order. Features that influenced this buyer ... as well as many other buyers ... include:

- 1 ... no mechanical linkage to the diaphragm
- 2 ... an actuating medium of compressed air or vacuum, or a combination of both
- 3 ... durable solenoid valves for controlling pulsations
- 4 ... no holes in the center of the diaphragm to promote weakness
- 5 ... durable synthetic rubber diaphragm, lining and ball check valves

With several sizes of O.D.S. Pumps available, ranging up to 3 inches, our engineers will select the units that will take care of your requirements for sludge, slurry, or solution-handling. In writing for Bulletin 307-R which illustrates and describes in detail the Oliver Diaphragm Slurry Pump, tell us about your problem.

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9-GUF-3

When inquiring specify CP A103 — see information request blank, pgs. 2-3

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## CHEMICAL PREVIEW

Edited for Production and Laboratory  
Men in the Chemical Process Industries

VOLUME 7

NUMBER 5

September-October, 1944

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### 25,000 Circulation in These Chemical Process Plants

Brewers, Distillers	Fertilizers	Petroleum Refining
Cellulose	Food Products	Plastics
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### NEW! Controller For Electric Furnaces

An innovation in automatic control for electrically-heated furnaces, kilns, ovens, etc., Micromax Electric Control, Duration-Adjusting Type — is described for the first time in the catalog shown above.

This newest member of the Micromax family provides highly accurate proportional control with the utmost simplicity of equipment. Using a contactor instead of a rheostat, it constantly adjusts the length of time during which electric heat is applied to compensate for changes in ambient temperature, furnace charge, or any other factor which even slightly affects temperature.

Write for Catalog N-OOA(2)

**LEEDS & NORTHRUP**  
MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACE

Jrl. Ad N-OOA(5a)

When inquiring specify CP A104 — see information request blank, pgs. 2-3

**A-F PORT-A-FLOW CONVEYORS**  
**FOR LARGE PLANTS—OR SMALL**



A-F Portable Conveyors—such as this incline-belt design which elevates cartons into refrigeration rooms, storage warehouses and freight cars—provide a flexible, efficient, low-cost handling operation for a wide variety of applications in plants—large or small. Write for details of all types of A-F Conveyors. Or, if you have an "indoor transportation" problem, let us help you solve it. Write today!

17 Disney Street,  
Cincinnati 9, Ohio

**CONVEYING EQUIPMENT**  
**Alvey-Ferguson**

INDUSTRIAL PRODUCTS CLEANING & FINISHING EQUIPMENT

When inquiring specify CP A105 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## "That's Interesting"

### Iconel-Asbestos Packing for Corrosive Service

A new type packing has been developed for corrosive conditions and temperatures up to 2000 F. Used to pack exhaust joints in airplanes this Iconel-asbestos combination protects against dangerous gases. It can also be made from a combination of Monel or nickel and asbestos. It is highly resilient and can be made to industrial requirements. (Johns-Manville Corp., N. Y.)

### Stars and Stripes Forever

In 1791 when Vermont was admitted to the Union an additional star and stripe were added to the flag. A similar addition followed in 1794 when Kentucky was admitted. The flag that flew over Ft. McHenry when Francis Scott Key wrote the "Star Spangled Banner" had fifteen stripes. Upon the admission of more states the number of stripes was reduced to the original thirteen. (The Agitator)

### New Developments in Fabric Treatments

Radical new developments in the chemical treatment of fibers will have great effects on the post war textile industry. These developments include treatment of wool so that it can't shrink. Treatment of cotton and wool so that the wearing qualities will be doubled. Treatment of serges to eliminate the shine from cloth. Treatment of wool so that pressed trousers and suits retain their creases even in rain and will not wrinkle when packed in suitcases. Treatment of fibers so that they will not slip. This means that stockings will not run or seams pull out. (Monsanto Chemical Co.)

### Music In the Air

An unusual application of Plexiglas is shown in a photograph in recent issue of Rohm & Haas Reporter. A Wurlitzer Grand piano utilizes Plexiglas for its supports. The combination of the handsomely finished cabinet and the gracefully contoured plastic supporting sections add to the beauty of the instrument as a whole and offers interest from a design standpoint. There is the effect of floating on air in contrast to the great actual strength and rigidity of the plastic support.

### I'll Take Vanilla

Last year there were over 2,250,000,000 ice cream cones sold in the United States. Although the cone seems to be favored just a little more in the medium and small size towns than in our biggest cities, Chicago, for example, consumed 70,000,000 in '43. To meet this tremendous demand modern cone baking plants have a production set up that rivals the assembly lines of heavy industries. Mixing of materials, baking, conveying and packing are all carried out with precision and speed and close control assures a uniform, quality product.

### Checking Liquids During Processing

A new method of checking liquids during processing depends on the observation of color by a photo-electric colorimeter reports Deco Trefoil.

### Highway Paved With Steel Mats

Steel mat paving that has been used for quick construction of landing fields and on invasion beaches may have practical highway paving applications. In Connecticut a section of highway is being paved in this manner to test its value for such use.

### Battleships Use Valuable Metals

The raw material required for the construction of a 35,000 ton battleship includes 2,000,000 pounds of copper, 1,000,000 pounds of zinc, 82,000 pounds of tin, 932,000 pounds of aluminum and 796,000 pounds of nickel.

### Aluminum on the Sea

One of the earliest uses of aluminum in marine services was on the Defender, winner of the America Cup Race in 1895. It was built of aluminum from the waterline up. Unfortunately the light material was attached to bronze and steel. The electrolytic action caused rapid disintegration shortly after the race. Since then aluminum has been used very successfully in marine use, for life boats and in bulkhead construction. (Aluminum Progress).

**PORTER**  
"Better Built"  
Equipment  
Established 1866

- Agitators
- Mixers
- Blenders
- Ball & Pebble Mills
- Industrial Locomotives

**Devinne**

- Autoclaves
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- Heat Exchangers
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## H. K. PORTER COMPANY, Inc.

General Offices PITTSBURGH 1, PENNSYLVANIA

Factories at Pittsburgh, Pa. • Newark, N.J. • New Brunswick, N.J. • Mt. Vernon, Ill. • Blairsville, Pa.

When inquiring specify CP A106 . . . see information request blank, pgs. 2-3



If you operate magnetic separators, this bulletin will aid you in getting better performance from them. Completely illustrated, it covers: Magnetism; Electromagnets; Mechanical and Electrical Maintenance; Pulley Speeds; Trouble Shooting; Installation Practice; Pulley Selection, etc. Describes testing procedure, explains how to minimize chance of coils burning out, explains electromagnetism. A useful guide to separator operation containing material never before written on the subject.

Your copy may be secured by writing to Dings.

**DINGS MAGNETIC SEPARATOR CO.**  
510 East Smith Street • Milwaukee 7, Wis.  
Separation Headquarters Since 1899

When inquiring specify CP A107 — see information request blank, pgs. 2-3

# PROBLEM:

## THE NAVY NEEDED SMOKESCREEN -MORE SMOKESCREEN....



**A New Producer presented Niagara Filter his production problems: TITANIUM TETRACHLORIDE IS DANGEROUSLY VOLATILE — AND MUST BE FREE OF THE MINUTEST SPECKS!**

Two important production problems arose. The titanium tetrachloride was dangerously volatile — prone to billowing clouds of fumes upon contact with the slightest amount of moisture, and upon contact with water formed highly corrosive hydrochloric acid. Secondly, the liquid had to be free of the tiniest specks of solids which might otherwise clog the spray nozzles at some critical moment when a billowing smoke screen could mean the difference between life and death.

Distillation seemed the only sound way to clarify the titanium tetrachloride, but the necessary steam plant and stills would not be ready for months — and the war couldn't wait. Niagara's engineers were hopefully consulted since they had only recently solved an equally complex problem for an affiliate company.

After careful study and a few pilot tests, Niagara's engineers were able to provide a temporary solution in the form of a stock filter which was on hand — and a skilled method of procedure. Within a few days time, the Navy began to get its smokescreen!

As a result, the producer's contract was increased to \$2,000,000 and a tailored-to-the-job, engineered Niagara Filter System was quickly designed and built to step up the production. Even the corrosion problem was licked by Niagara's "Controlled Filtration" procedure and the scientific approach and "know-how" of our trained staff.

Even though your product may not be so difficult to handle, nor militarily important, you are invited to consult with Niagara's staff of filtration experts **WITHOUT ANY OBLIGATION**.

NIAGARA FILTER SYSTEMS are designed to properly filter liquids from 500 to 25,000 gph.

**niagara filter** CORPORATION

**WATCH FOR** other case histories of how Niagara Filter systems solve chemical problems . . . Write us for descriptive literature.

When inquiring specify CP A108 . . . see information request blank, pgs. 2-3

3080 MAIN STREET

BUFFALO 14, N. Y.

AMHERST 2100

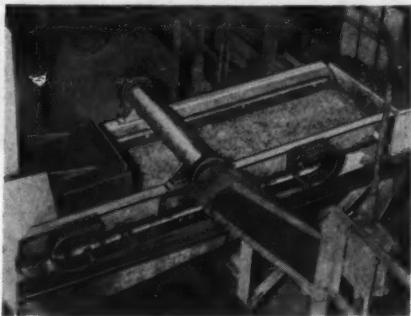
Filtration Engineers to the Processing Industries

# New Solutions of Plant Problems

The solutions here given are selected because of their ideas in the application of available equipment or materials to overcoming certain tough plant problems. Many of these suggest basic ideas applicable in kindred or very different problems of process production.

## Screening Solids Stops Pollution

Permits water only to enter sewers and aids in recovery of material for by-products



**Problems** — Processing involving the separation of liquids from solids, grading, recovery and reduction of pollution entail use of equipment specifically adapted to various materials and operating conditions. Some typical cases are cited here.

**Problem** — Fish oil producer sought to improve removal of solids and eliminate use of large settling tanks.

**Solution** — Battery of vibrating screens removes solids, places them back in system continuously and also eliminating use of settling tanks.

SEPARATING SOY BEAN oil from meal

**Problem** — Stream pollution is a matter demanding ever greater attention as plants are obliged to eliminate or reduce it.

**Solution** — Screen equipment properly installed is greatly simplifying such difficulties in various processing operations such as those involving soy beans, cannery wastes, etc. For example installation of a 3 x 8 ft. vibrating screen to receive the plant waste through an 8 in. sewer pipe permits screening out solids so that only the water enters the sewers. The screen receives an average of 250 to 500 gallons of water per minute.

**Results** — Pollution eliminated, waste recovered, solids kept from sewers.

**Other applications** — Recovery of valuable solids in rubber manufacturing plants, screening vital ores as in the recovery of valuable tungsten from scheelite ores; screening borax, cement, clay, sand, gypsum, lime, etc.

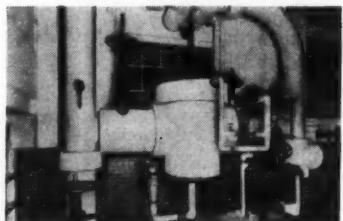
**Description** — Screens referred to here contain only one moving part a vibrator unit, which rotates in large oversize roller bearing and is fully enclosed. Intensity of vibration can be varied as required. Unique design of tension members provides easy adjustment and maintenance of required tension of screen cloth. For large and small capacities and degrees of separation. Literature on request.

LINK BELT CO., Dept. CP, 307 N. Michigan Ave., Chicago, Ill.

When inquiring specify CP A109 — see information request blank, pgs. 2-3

## Cartridge Type Desuperheaters Conserve Power And Heat

**Aid in providing precise steam temperature. Serve in cooking processes, distillation of aqueous and non-aqueous mixtures; textile and chemical plants**



### DESUPERHEATER INSTALLATION

**Problem** — Frequently, in rebuilding or in making additions to power plant, boiler and prime mover equipment for higher pressures and superheat than previously have been used, are installed. An adjustment between old and new equipment then becomes necessary. The exhaust steam from auxiliary turbines and steam bled from intermediate stages of the main turbine, part of which is used in the power plant for heating the boiler feed water, is generally highly superheated if the turbines are operating on high pressure superheated steam. Closed feed water heaters, evaporators and open heaters not designed for the use of superheated steam should be protected. Wide temperature variations in this equipment due to the use of superheated steam, frequently causes loosening of the tubes, distortion of tube sheets and other operating troubles.

## New Solutions

**Solution** — Pressure reduction can be secured through the use of reducing valves, and the superheat in the steam removed by desuperheaters. Desuperheaters will protect closed water feeders, evaporators, etc. Desuperheaters also give protective service where steam heating systems are an adjunct to power generating equipment where no source of low pressure exhaust steam is available, protecting the system against strains due to boiler steam at high pressure being passed into system.

**Application** — Boilers in plant originally designed for 200 psi operation were producing steam for only process and mill heating. They were operating at 125 psi, process steam lines receiving steam from the boiler header, pressure being reduced in some of the lines to suit the particular apparatus or process. Process steam demand in summer was 16,000 to 32,000 lbs. per hr., in winter 24,000 to 50,000 lbs. per hr. By raising the boiler pressure to 185 psi and installing superheaters to bring the temperature 550° F. it was found that a 1750 kw turbine generator unit could be operated with the existing boilers, extracting all process steam from the turbine at 30 psi and at an average temperature of 330° F. A reducing valve and desuperheater station, with constant pressure regulator and temperature control, serves when the turbine is shut down at night and when the process steam demand is in excess of that necessary to supply the electrical load. (See accompanying and also cover illustration). The turbine governing system regulates to use the full process steam quantity to generate power and maintain extraction steam pressure constant; additional power is supplied automatically to by utility tie-in; if power requirements still exceed the electrical power obtained by process steam, plus the set amount to be taken from the utility, excess is produced by using the condensing end of the turbine; there is no feed back from the turbine to the utility system; the turbine runs independent of the utility system, to its full respective capacities as straight back pressure, straight condensing or condensing extraction turbine. In normal operation, the unit runs parallel with the utility system, which governs the frequency. The turbine speed governor is inactive and a power limiting valve regulator, energized from a set of instrument transformers in the tie-line, starts to act on the extraction regulating valves admitting steam to the condenser as soon as the power demand exceeds the kilowatts obtained by process steam plus the set maximum from the hydro system. If power requirements are less than the power which could be obtained from process steam an electrically operated regulator reduces the amount of steam admitted to the turbine, the extracted steam pressure on the turbine tends to close, and the pressure regulator on the reducing valve starts to open the reducing valve. Descriptive Bulletin available.

THE ELLIOTT CO., Dept. CP, Jeanette, Pa.

When inquiring specify CP A110 — see information request blank, pgs. 2-3

### Do You Have a New Solution?

Has a recent use of your equipment solved a difficult chemical plant problem? The equipment may be new or from your standard line. For publication, data should state definitely (1) Nature of operation in question, i.e., cooking, cooling, mixing; (2) Difficulties involved such as control of temperature, product uniformity, lubrication or cleaning; (3) How was equipment used — in standard or modified form? (4) Results, facts on savings in time, labor, increased production or similar cost factors or extent of product improvement. Address the Editors.

CHEMICAL PREVIEW

737 N. Michigan

Chicago 11, Ill.

## PUMP IN *Automatically* CONTROLLED VOLUME

### ... With Milton Roy Pumps ... A New Application of Electronics

With these pumps the controlled volume of treating liquids handled by Milton Roy units is automatically regulated by means of electronic circuits in connection with any of the following metered variables . . .

1. Rate of Flow
2. pH Value
3. Chemical Concentrations
4. Liquid Level
5. Temperature
6. Pressure
7. Residual Chlorine
8. Conductivity
9. Oxidation, Reduction potential
10. Carbon Dioxide
11. Gas Analysis
12. Any other variable that can be metered

The electronic control is simple, compact, rugged . . . employing standardized, long-lived units.

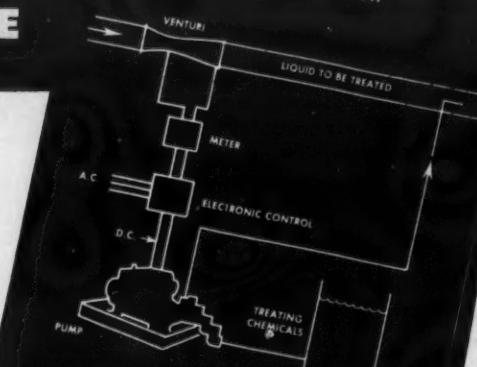
The pumps are standard or specially engineered Milton Roy Step-Valve units. Simplex or Duplex, in capacities to 1300 or 2600 g.p.h. in any corrosion resistant metals that can be cast and machined . . . for handling chemicals, solids in suspension, solvents, oils, viscous materials, etc., at discharge pressures up to 20,000 lbs. per sq. in.

Complete Pump Catalog  
and more details on Elec-  
tronic Volume Control on  
request.

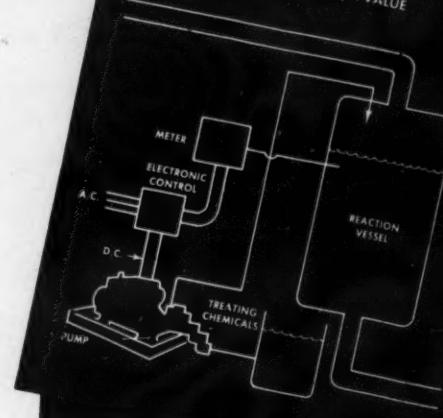


MILTON **Roy** PUMPS

EXAMPLE RATE OF FLOW



EXAMPLE LIQUID LEVEL PRESSURE  
TEMPERATURE pH VALUE



Consult with Milton Roy Engineers on any problem having to do with pumping chemicals in precisely-controlled volume. It will help us make recommendations and quote prices if you will state

- Capacity, gallons per hour
- Discharge pressure, lbs. per sq. in.
- Material to be pumped
- Percentage of concentration
- Operating temperature
- Power supply available



1310 E. Mermaid Ave., Chestnut Hill - Philadelphia, 18, Pa.

When inquiring specify CP A111 . . . see information request blank, pgs. 2-3

## New Solutions

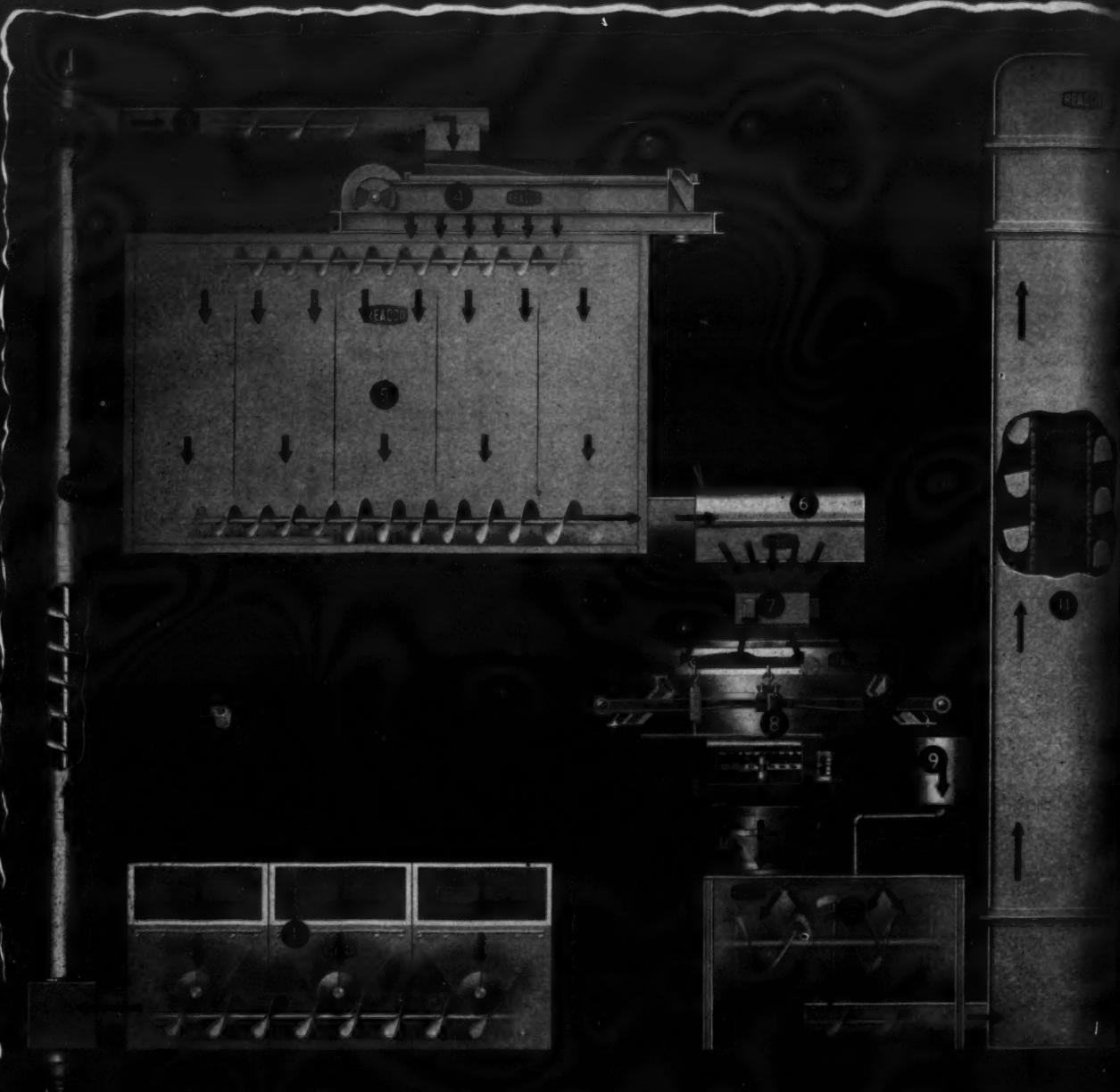
### Horizontal Design Induced Draft Cooling Towers

*Achieve greater effective heat transfer rate by optimum air-water flow*

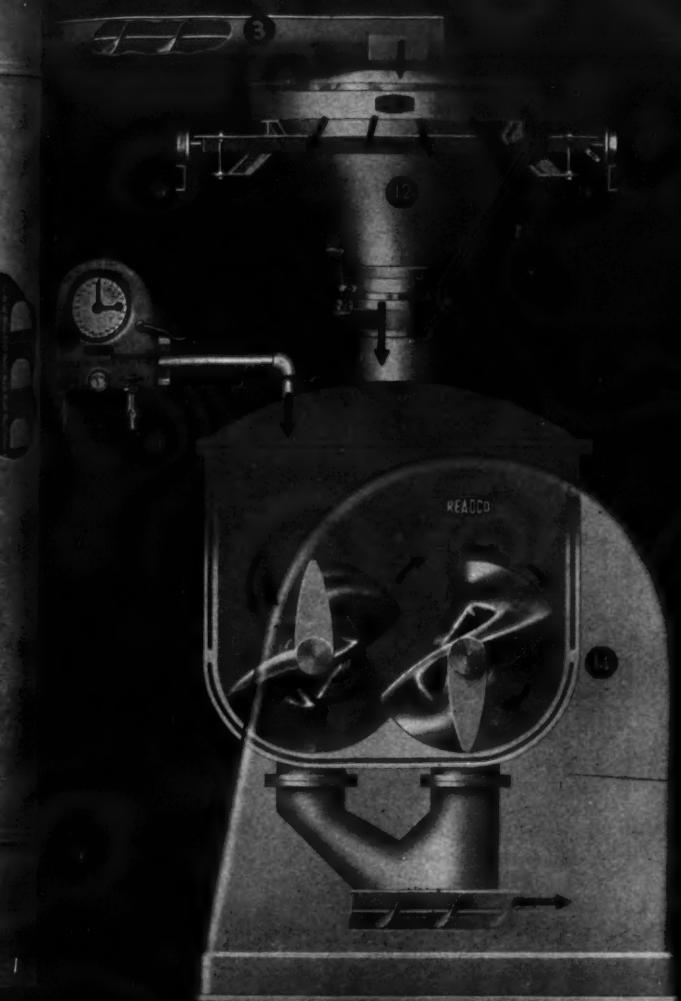
**Problem** — Processing plants requiring means of cooling large volumes of water find that this equipment must be selected carefully as to type, design, construction, space requirements and cost and amount of materials required. Forced draft towers were the first dependable means of obtaining exact and constant cold water temperatures. Power driven fans provide controlled performance through positive control of air movement and "drift eliminators" prevented escape of spray. Because it blows the air into the cooling chamber from only one side, forced draft cannot obtain the completely uniform intermingling of air and water essential for utmost evaporative cooling efficiency. With air leaving at low velocity from the whole broad top area and with strong suction fan close below, there is a tendency to recirculate their own air with varying losses of rated efficiency. With fans along the side, fan size is limited and foundation costs are a factor.

**Solution** — Induced draft towers, with fans centered along the top, draw air in at comparatively low velocity on both sides through broad intake areas, avoiding recirculation and a reducing fan horsepower. With fans revolving in a horizontal plane, larger diameters are practical, which saves on the number of fans, motors, starting and wiring. Foundations and catch basins are less costly. This maker produces induced draft towers having one fan to two cooling chambers through which air is drawn horizontally. Water distribution is uniform over the entire cooling chamber from evenly spaced nozzles in the floors of the open supply basins which form the top of the tower. On down through the cooling chamber uniform maximum exposure of water surface to the pas-

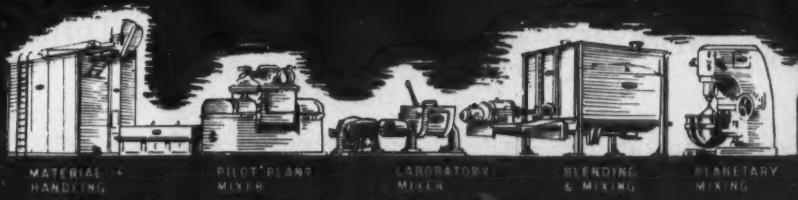
For more information on product at right, specify CP A112 . . . see information request blank between pages 2-3.



**ENGINEERED TO *Your* NEEDS**



# READ



MACHINERY CO., Inc.  
YORK, PENNSYLVANIA



## CHEMICAL PROCESS EQUIPMENT

- 1 BLENDING BINS with choice of conveyor speeds in each bin for perfect blending of dry or granular materials.
- 2 SPIRAL ELEVATORS designed with proper pitch and clearances to elevate materials without compressing.
- 3 SPIRAL CONVEYORS precision built with drive shaft running entire length of flight. Fully enclosed in dust tight casing.
- 4 VIBRATING SIFTERS to sieve and aerate efficiently all grades of material through finer mesh screen by a combined reciprocating and vertical rotary motion.
- 5 STORAGE BINS equipped with cross feed conveyors that evenly distribute incoming material and specially designed discharge conveyors that empty contents uniformly.
- 6 ROTARY SCREEN SIFTERS built with revolving cone screen which rotates in opposite direction from revolving brushes to accomplish efficient cleaning and aerating.
- 7 AUTOMATIC CUT OFF GATES to assure greater accuracy by cutting off flow of material.
- 8 DUSTLESS AUTOMATIC WEIGH HOPPERS mounted stationary for discharging into one mixer or on a trolley and track for operation over a battery of mixers.
- 9 LIQUID WEIGH TANKS which automatically weigh and temper predetermined quantities of liquid with extreme accuracy.
- 10 BLENDERS designed and built with counter flow agitators to prevent build up of material at either end. Made in all sizes to meet specified requirements.
- 11 BUCKET TYPE ELEVATORS for either centrifugal discharge or central discharge of material. Designed to assure perfect coordination of material movement to the mixer.
- 12 HOPPERS built with or without weighing mechanism and exclusive dust eliminating features.
- 13 AUTOMATIC LIQUID METER for volume control. Accurate and easily read thermometer, safety overflow and drain outlet. Operation is entirely mechanical, requiring no electrical current.
- 14 LABORATORY, PILOT AND PRODUCTION MIXERS of all types including the recognized single packing gland, double arm mixer with exclusive designed features to eliminate contamination are built in sizes ranging from 2.5 gallon to 1200 gallon capacity.

## New Solutions

sing air is obtained by means of a patented filling which provides more splash surface and greater effective wetted area. Movement of greater air quantities with less draft loss are possible since there are no air-flow obstructions such as the conventional vertical induced draft tower's internal water distributing system and filling slats set broadside to the flow of air. With air inlet louvers, filling and "drift eliminators" all horizontal and air flowing horizontally through them, the air volume is uniform and smooth throughout the cooling chamber. Made in the two-cell design for requirements average to unlimited in a singlecell style for the smallest services. Literature on request.

THE MARLEY CO., Dept. CP, 3001 Fairfax Rd., Kansas City, Mo.

When inquiring specify CP A113  
— see information request blank, pgs. 2-3

## Glass Fiber Mats Remove Tar Fog

*Aid in overcoming kiln difficulties due to natural gas shortage and weather*

**Problem** — The world's largest pottery (Homer Laughlin China Co., Newell, W. Va.) has been obliged to shut down plant on several occasions because of natural gas shortage. To meet this situation company built its own gas producing unit. However, the operators were faced with the problem of removing from the gas the tar fog that clogged burners in the kilns.

**Solution** — This difficulty was solved by filtering gas through mats of glass fibers. To aid in maintaining controlled temperatures in the electrostatic precipitator tower, regardless of atmospheric temperatures, the tower was insulated with Fiberglas metal mesh blankets covered with Fiberglas insulating cement and a mastic finish. Moisture condensation in two 18 inch gas lines, which had caused severe pressure drops and kiln shut downs was eliminated by insulating the lines with more than a mile of Fiberglas pipe insulation. Fiberglas pipe insulation was also installed on outside water lines to prevent freezing in cold weather.

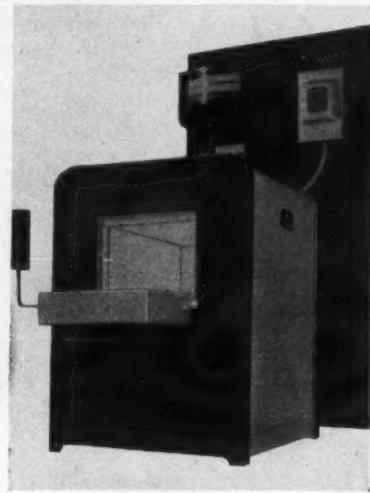
OWENS-CORNING FIBERGLAS CORP., Dept. CP, Toledo, Ohio.

When inquiring specify CP A114  
— see information request blank, pgs. 2-3

## New Solutions

### Electric Heat Treating Muffle Furnace Speeds Knife Tempering

For small parts, small runs, normalizing and as auxiliaries to larger furnaces



FURNACE has continuous operating temperatures — 1750 F.

**Problem** — Plant was hardening surgical knives by means of a salt pot without control and drawing in an open flame by eye. This operation completely absorbed one man's time. Savings in labor and more even temper and less variation in metal hardness were sought.

**Solution** — Old method of hardening replaced by use of muffle furnace with automatic control.

**Results** — Sav-

ings in man-hours, only labor involved being loading the basket, setting controls for the furnace and removing basket from chamber. Even temper and hardness of knives obtained.

**Other applications** — Heavy equipment manufacturer uses muffle furnace with automatic control in laboratory. Proper heat treating procedure is determined for each individual part before it goes into production. Company's various tools and dies undergo same procedure. Test bars and "Joiminy end quench hardenability tests" are also handled to determine results produced under hardening processes. Also used for drying samples for nickel determinations and for chemical analysis of silicon determination. This laboratory equipment is used at critical temperatures throughout its entire range from 150 — 1800 degrees F.

**Description** — Outer construction heavy gauge steel, frames secured by through rods. Elements are of imbedded type which afford protection to the element wire from atmospheric attack. Automatic or hand control. Type MH-3 has chamber capacity 8x6x14 inches — maximum consumption 3400 watts. Type MH-4 chamber 10x6x18 power consumption 4800 watts. MH-3, 110-220 v. circuits; MH-4 230 v. circuits only.

COOLEY ELECTRIC MFG. CORP., Dept. CP, Indianapolis, Ind.

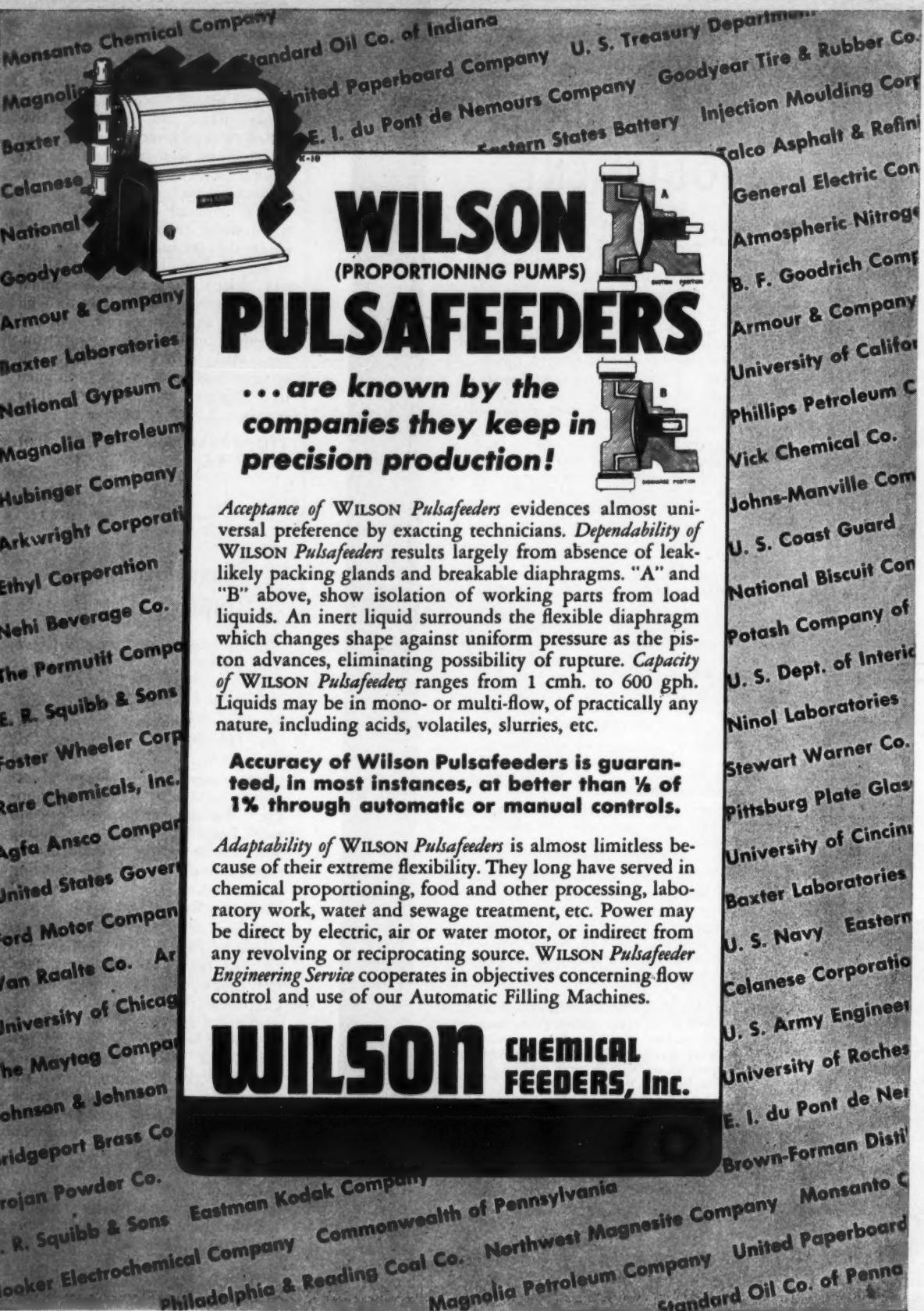
When inquiring specify CP A116 — see information request blank, pgs. 2-3

### Turbine Pumps Save Space; Avoid Need of Plant Addition

**Deliver 300 gpm of water for small repressuring system engines and condensers**

**Problem** — A natural gas company planned a small repressuring system in one of its plants, calling for approximately 300 gpm of water circulating through the engines

When inquiring specify CP A115 . . . see information request blank, pgs. 2-3



# WILSON (PROPORTIONING PUMPS) PULSAFEEDERS

... are known by the  
companies they keep in  
precision production!

Acceptance of WILSON Pulsafeeders evidences almost universal preference by exacting technicians. Dependability of WILSON Pulsafeeders results largely from absence of leak-prone packing glands and breakable diaphragms. "A" and "B" above, show isolation of working parts from load liquids. An inert liquid surrounds the flexible diaphragm which changes shape against uniform pressure as the piston advances, eliminating possibility of rupture. Capacity of WILSON Pulsafeeders ranges from 1 cmh. to 600 gph. Liquids may be in mono- or multi-flow, of practically any nature, including acids, volatiles, slurries, etc.

**Accuracy of Wilson Pulsafeeders is guaranteed, in most instances, at better than  $\frac{1}{2}$  of 1% through automatic or manual controls.**

Adaptability of WILSON Pulsafeeders is almost limitless because of their extreme flexibility. They long have served in chemical proportioning, food and other processing, laboratory work, water and sewage treatment, etc. Power may be direct by electric, air or water motor, or indirect from any revolving or reciprocating source. WILSON Pulsafeeder Engineering Service cooperates in objectives concerning flow control and use of our Automatic Filling Machines.

# WILSON

**CHEMICAL  
FEEDERS, Inc.**

E. R. Squibb & Sons Eastman Kodak Company

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Philadelphia & Reading Coal Co. Northwest Magnesite Company Monsanto Co.

Magnolia Petroleum Company United Paperboard Standard Oil Co. of Penna

Trojan Powder Co.

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The Maytag Company

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United Paperboard Company

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Phillips Petroleum C

Vick Chemical Co.

Johns-Manville Com

U. S. Coast Guard

National Biscuit Con

Potash Company of

U. S. Dept. of Interic

Ninol Laboratories

Stewart Warner Co.

Pittsburg Plate Glas

University of Cincin

Baxter Laboratories

U. S. Navy Eastern

Celanese Corporatio

U. S. Army Engineer

University of Roches

E. I. du Pont de Ne

Brown-Forman Distil

Standard Oil Co. of Penna

Monsanto Chemical Company

Standard Oil Co. of Indiana

United Paperboard Company

E. I. du Pont de Nemours Company

Goodyear Tire & Rubber Co.

Eastern States Battery

Injection Moulding Corp

Talco Asphalt & Refi

General Electric Con

Atmospheric Nitroge

B. F. Goodrich Comp

Armour & Company

University of Califor

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Monsanto Chemical Company

Standard Oil Co. of Indiana

United Paperboard Company

E. I. du Pont de Nemours Company

Goodyear Tire & Rubber Co.

## New Solutions

and condensers for cooling. Due to space limitations it appeared that an addition would be required to accommodate the pumping equipment.

**Solution** — Two deep well turbine pumps were installed. The water from the cooling tower comes directly through a large pipe to the suction of the pumps and the discharge flows directly through the engines and condensers and back over the cooling tower.

**Results** — Vertical construction of pumps saved sufficient floor space to avoid need of additional construction.

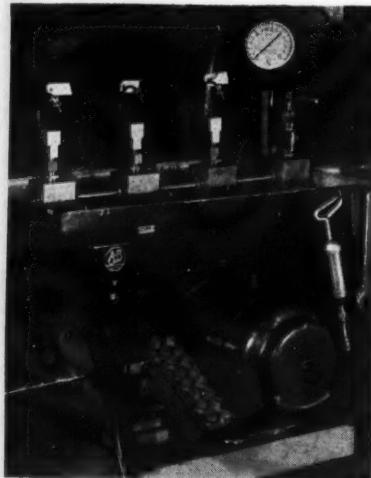
**Description** — Water lubricates the cutless rubber bearings. No oil or grease required below pump head. Parts subject to wear easily accessible. Capacities from 15-2000 gpm. Various drives including unit drive head (for standard installations) flexible coupling head; belt drive head; motor and gear head; direct current motor head; steam turbine head. Bulletin 4700-8 gives complete engineering data.

THE DEMING CO., Dept. CP, Salem, Ohio.

When inquiring specify CP A117 — see information request blank, pgs. 2-3

### Pump Gives 20,000 Lbs. Pressure to Test Bourdon Tubes

Combined with a test stand and a special 6 inch gauge for pressures up to 30,000 lbs.



PUMP with stand and gauge

**Problem** — Manufacture of Bourdon tubes for high pressure services entails a much more complicated problem than encountered in producing those for low pressures. It is not only a matter of strength but also of metallurgy, shape of cross section, elasticity, hysteresis and factor of safety.

**Solution** — Pump embodying step-valve design (see accompanying illustration) is used for 20,000 pounds per square inch hydrostatic testing pressure with a test stand for Bourdon tubes and a gauge for pressures to 30,000 pounds.

**Results** — Pump builds up required pressure rapidly and maintains them continuously. Slippage is negligible. The design of the valve is such that air binding is eliminated. Double-ball checks clear themselves of dirt particles.

**Description** — Also used for testing boilers, piping, pressure vessels and for handling practically every chemical service. Available in choice of materials; simplex and duplex types; 1 - 2600 gph. Several methods of manual stroke length adjustment available. Literature on request.

MILTON ROY PUMPS, Dept. CP, 1300 E. Mermaid Ave., (Chestnut Hill) Philadelphia, Pa.

When inquiring specify CP A118 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

**NORTHMASTER**  
Precision  
Equipment



## STRUTHERS WELLS Kneading machines

Extra large capacities now available.  
For mixing heavy and viscous materials.  
Made of steel, stainless steel and other metals.  
Standard sizes from  $\frac{1}{2}$  gallon to 4000 gallons.  
Special machines designed for unusual jobs.

Write for Bulletin No. 51

STRUTHERS WELLS CORPORATION

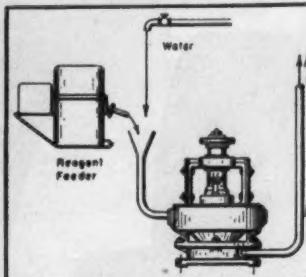
Wissahickon, Pennsylvania, U.S.A. Warren, Pennsylvania

When inquiring specify CP A119 . . . see information request blank, pgs. 2-3

## New Solutions

### Vertical Sand Pump Emulsifies Water Insoluble Reagents

Feeds small quantities of reagents to large quantities of pulp efficiently



SAND PUMPS provide complete dispersion of reagent

come by use of a small vertical centrifugal sand pump with horizontal runner. The water insoluble reagent is added full strength to the pump bowl along with the desired quantity of water and any other reagents. The degree of emulsification can be increased by pumping the discharge of one pump into the bowl of a second pump.

**Results** — The pump discharge is very well emulsified with complete dispersion of the reagent in the solution, resulting in a savings in reagent consumption. This vertical centrifugal sand pump is very well suited for this service because it will handle very small tonnage rates and there are no bearings or stuffing boxes exposed to contact with the reagent. Specifications and other information on this and related metallurgical equipment on request.

DENVER EQUIPMENT CO., Dept. CP, 1400 17th St., Denver 2, Colo.

When inquiring specify CP A120 — see information request blank, pgs. 2-3

### Boiler Drum Head Insulation Pays Off in Four Months

Saves 30 tons of coal per year; application of mineral wool cement to inside area of boiler shell offers protection and stops heat loss

**Problem** — In an effort to achieve overall economies plant carefully checked boiler insulations. Drum head insulation was suggested as a means of additional and worthwhile savings.

**Solution** — Heads on this drum 430 psi boiler were covered with 2½ inch of mineral wool insulating cement at cost of \$52.50.

**Results** — Loss of more than 496 million BTU per year from the 42 sq. feet of drum head surface was stopped. In terms of coal, this meant a savings of 30.1 tons the first year or approximately \$150.00 enough to pay off the investment in about four months. Even higher savings are involved when higher priced fuels are used.

**Protective Features** — In addition to keeping heat inside mineral cement can be applied to prolong the life of certain boilers. Experience indicates that in these boilers, the hot combustion gas, which passes from the firebox through the tube chamber and into the smokebox at the rear, plays havoc often with the

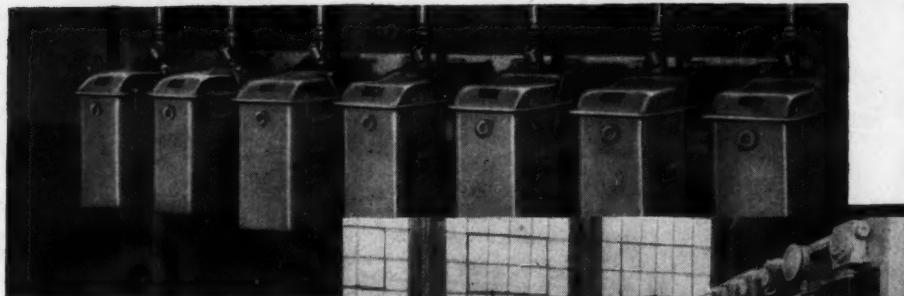
**Problem** — A problem frequently encountered is the difficulty of feeding small quantities of water insoluble reagents to large quantities of pulp. This is due to inadequate diffusion and dispersion.

**Solution** — This difficulty is over-



Eight G-E totally enclosed, fan-cooled induction motors driving centrifugal pumps outdoors at a natural gasoline plant. Squirrel-cage motors of this type are available in ratings up to 1000 hp, listed by Underwriters' Laboratories, Inc., for Class I, Group D, conditions.

Arriving ready for installation in a Class I, Group D, location, here's a rack assembly of G-E oil-immersed 440-volt combination starters. Suitable for motors up to 100 hp, these starters operate with all contacts at least six inches under oil.



Eleven G-E combination air-break starters for Class I, Group D, hazards controlling G-E explosion-proof pump motors in a gas-cycling and repressuring plant.



# a Housing Problem

**Explosion-proof motors and suitable control eliminate the need for special isolation to meet chemical plant hazards—both explosion and corrosion.**

BUILDING separate vaults or housings to isolate electric equipment from explosive and corrosive atmospheres is costly. It wastes engineering and installation time. It complicates maintenance. So do cumbersome remote-driven arrangements.

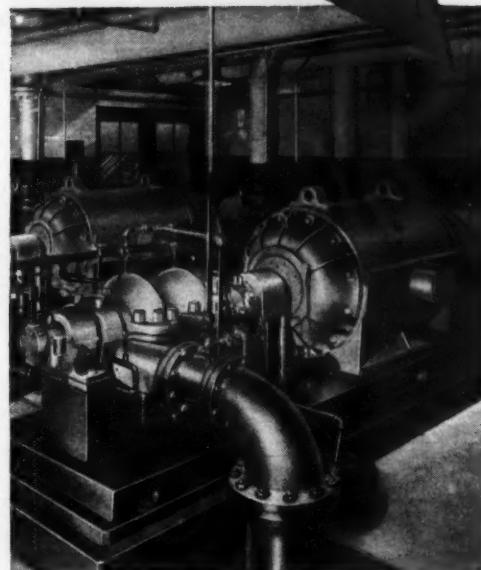
G-E builds motors and control that are specially designed to be "put on the spot" in Class I, Group D, locations—without any extra safeguards. They carry their own protection. They are "at home" indoors or out in the open. You locate them solely on the basis of convenience, and economy of space and machinery.

## NAME YOUR HAZARD

Whether it's high-octane gasoline, solvents, magnesium dust, acid fumes, or outdoor service, there's a way to meet your conditions with a combination of G-E motors and control. For General Electric builds the most complete line of motors and control devices for use in Class I as well as Class II locations.

And—assistance in selecting the motors and control which best combine security and economy on your jobs is right within reach of your telephone. G-E engineers specializing in chemical plant applications will be glad to have you call on them for help via the G-E office near you.

BUY ALL THE BONDS YOU CAN—AND KEEP ALL YOU BUY



Three explosion-proof squirrel-cage motors driving raw-material pumps in a plastics plant. G-E wound-rotor and solid- and hollow-shaft vertical motors are also available in explosion-proof construction.

To General Electric Company, Section C662-12,  
Schenectady 5, N. Y.

**Sure** I'd like to have a copy of your  
helpful new 24-page bulletin,  
"Motors and Control for Hazardous Locations,"  
(GEA-4131)

Name.....

Company.....

Address.....

City..... State.....

shell of bib sheet at the boiler's rear. The heat of this gas tends to warp the unprotected boiler shell and promotes early failure. One solution lies in removing insulation from the outer surface of the bib sheet and insulating the boiler shell by applying two inches of mineral wool insulating cement to the inside area. This hot gas from reaching the boiler shell and stops heat loss.

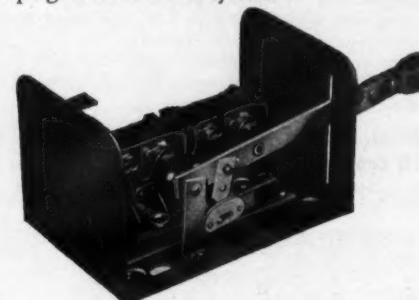
INDUSTRIAL MINERAL WOOL INSTITUTE,  
Dept. CP, 441 Lexington Ave., New York, N. Y.

When inquiring specify CP A122 — see information request blank, pgs. 2-3

## Alternator Provides For Even Condensate Pump Wear

*Eliminates evils of long stand-by for one of two pumping units*

**Problem** — Alternating the operation of two condensate pumps in a duplex system, — providing alternate cycles of operation to assure even wear of the pumping units in such a system.



VIEW of 2 switch mechanisms

**Solution** — This is accomplished by means of a mechanical alternator. It provides the additional function of starting the "second" pump in cases where extra capacity under peak conditions is required.

**Results** — Assures even wear. Eliminates evils of long stand-by for one of the two pumping units.

**Description** — These mechanical alternators (Class 9049) are built around standard switch units and employ two lever operated switches coupled with a unique but simple alternating linkage. Contacts are of laminated bronze and silver — contact blocks are of heavy Bakelite — three concentric knockouts for  $\frac{1}{2}$  or  $\frac{3}{4}$  inch conduit are provided — the operating lever is extendable from  $3\frac{1}{2}$  to  $4\frac{3}{16}$  inches. A wiring diagram is furnished with each control. Type A of the series is for sump operation, Type A1 for standard operation. With the first of these contacts close on rising liquid level; with the second contacts open on rising liquid level. (For either the type A or A1 approximate minimum force required to operate the lever at minimum length is one pound). A flange mounted type FA for sump operation, FA1 for standard operation is also offered and provides a means for alternating pumps installed with a common tank in a duplex system. The type FA is furnished primarily for condensate pumps and thus for sump operation but type FA1 can be supplied when specified for pumping operations requiring the stopping of pumps on rise in liquid level.

SQUARE D CO., Dept. CP, 6060 Rivard St., Detroit 11, Mich.

When inquiring specify CP A123 — see information request blank, pgs. 2-3

# GENERAL ELECTRIC

When inquiring specify CP A121 . . . see information request blank, pgs. 2-3

# Again Available

..TO MEET MOST  
PRODUCTION  
SCHEDULES



**A** WESTON, production finally has outstripped the overwhelming war demand for panel and other instruments . . . making WESTONS again obtainable on a basis to meet most war production schedules.

To experienced instrument users, this means they again can obtain the instruments whose design and manufacture incorporate the broadest instrument experience in surmounting the requirements of exacting applications. The instruments whose consistent, uniform performance simplifies their problems of inspection, handling and other burdensome procedure . . . and whose dependable, long-term accuracy assures better operating performance from the devices into which they're built.

Why not discuss your instrument schedules with WESTON, today . . . and be sure of obtaining the added product efficiency which authentic WESTONS provide.

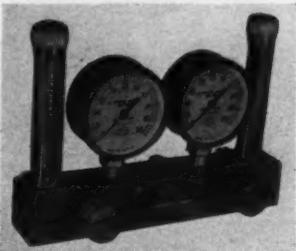
**Weston Electrical Instrument Corporation**  
**618 Frelinghuysen Avenue, Newark 5, N. J.**

When inquiring specify CP A124 — see information request blank, pgs. 2-3

## ★ INSTRUMENTS of CONTROL

### Proportioner for Gas Mixtures at Less Than 5 Lbs. PSI Pressure

Selection of six available flow meters permits wide variation in the proportions of the two gases to be mixed



PROPORTIONER ASSEMBLY

a mixing block incorporating accurately sized orifices and needle valves for the gases as well as inlet and outlet nipples on which are mounted flowmeters, pressure gauges and plates. It can be furnished with any two of six available flowmeters, permitting a wide variation in the proportions of the two gases to be mixed. Flowmeters for hydrogen service cover a range from approximately 2 to 200 cubic feet per hour and for nitrogen the range is from approxi-

**Uses** — For electronic tube manufacturers, heat treaters and others who use mixtures of gases for protective atmospheres. It produces an accurately proportioned mixture of such gases at a pressure not in excess of 5 lbs. per sq. in.

**Description** — This proportioner consists of

mately 6 to 140 cubic feet per hour. The gases should be supplied through two stage regulators capable of delivering the required volume at pressures of from 10 to 25 pounds.

**AIR REDUCTION SALES CO., Dept. CP, 60 East 42nd St., New York 17, N. Y.**

When inquiring specify CP A126 — see information request blank, pgs. 2-3

### Vacuum Test Pit for Impellers

Provides for study of stresses in high speed rotating machinery; insures safe operation of cast or fabricated fans.

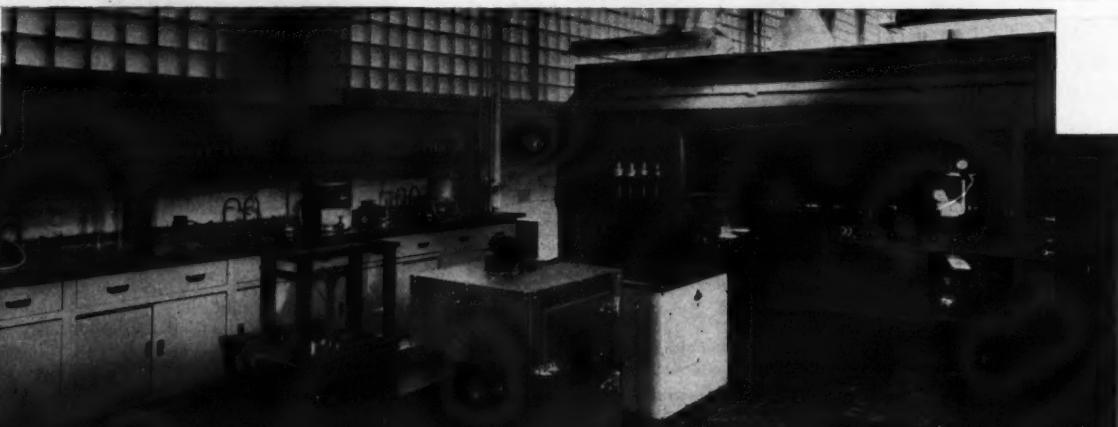


STUDYING STRESSES with test pit

fabricated fans, the fan may be run at sufficient overspeed to permit calculation on the factor of safety. On new design the impeller may be tested to destruction in order to determine the weakest section or some unpredictable condition.

**Features** — A check on fan balance can be made on high speed impellers that might otherwise be impossible, except at final installation.

**Description** — This test pit so termed because the shell is set in concrete below the floor level is 6 feet in diameter by 4 feet deep. It is made of heavy, reinforced construction to withstand absolute vacuum. While designed along the lines of a device to test turbo-super charger impellers and capable of operating at 60,000 rpm it will accommodate larger fans at lower speeds. In operation of the test pit the impeller to be tested is hung by a slender shaft from a small air turbine mounted on the cover. A vacuum pump then exhausts the air from the drum so that it takes practically no horsepower to spin the fan. The pressure within the drum may reach as low as 200 microns of vacuum (.000787 inches of mercury absolute as compared to standard atmospheric pressure). Under these conditions the power to drive the fan (exclusive of turbine friction) is about 1/4000 of the power under normal conditions. The acceleration must be gradual, the speed being under the constant control of the operator by means of an air valve and air brake. In order to keep the speed indicating device from absorbing power at the higher speeds, an electrolytic frequency meter is used. This is a direct reading dial type instrument with suitable amplification. To protect the shell from damage that might result from the force caused by rupture when testing to destruction on new design, there is supplied a laminated shield within the main shell so that the force will be expended against this shield and not seriously harm the shell which maintains the vacuum. The use of the pit provides opportunity to study stress conditions while the device is in operation. A glass aperture in the cover of the pit permits visibility of the



### Plan with SHELDON for Tomorrow

Out of today's war effort will come new and better materials, methods, and designs which will dictate the design and construction of laboratory equipment tomorrow. Sheldon, long a leader in producing laboratory, home economics, art and vocational furniture can help you meet the demands of tomorrow if you plan today. Let us discuss your post-war plans with your organization NOW.

Ask our Planning Engineers to call.

**E. H. SHELDON & CO.**  
730 NIMS STREET MUSKEGON, MICHIGAN

When inquiring specify CP A125 . . . see information request blank, pgs. 2-3

## INSTRUMENTS

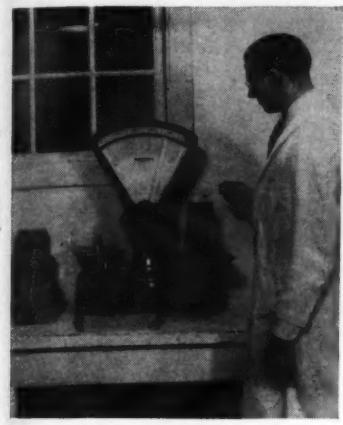
impeller by stroboscopic light. Also through the use of strain gauges in the circuit with a cathode ray oscilloscope, stresses and vibrations may be visualized and measured. Information on various types of fan equipment by this organization will be sent on request.

BUFFALO FORGE CO., Dept. CP, P. O. Box 985, Buffalo 5, N. Y.

When inquiring specify CP A127 — see information request blank, pgs. 2-3

### 5 KG Scale — Sensitivity 1/2 Gram

For laboratory and production use in weighing exacting proportions of high cost materials



SCALE has combination avoirdupois-metric chart

**Uses** — This scale is well adapted for general laboratory (also production) use in chemical and other processing plants in weighing smaller, exacting, proportions of ingredients for testing, for batches or for packaging.

**Features** — High sensitivity combined with moderate capacity. Avoirdupois-metric chart lends versatility to the use of this scale. Eliminates unnecessary waste of high cost materials.

**Description** — Sensitivity to  $\frac{1}{2}$  gram or  $\frac{1}{64}$  of an ounce or  $\frac{1}{100}$  of a pound. Five kilogram (10 lb.) capacity with a graduation and a figure for every gram. Also graduations as fine as  $\frac{1}{100}$  of a pound. Indications may be read in either avoirdupois or metric weight without mental calculations. Hairline indicator insures correct reading. Indicator oscillation is regulated by hydraulic dashpot which functions as a quick-stop shock absorbing device. Perfect leveling is easily obtained by means of the adjustable base supporting legs, one under each end and one under the center of the scale. The fully enclosed base is dustproof and all parts are treated to insure maximum protection against corrosion and rust. Finished in black or white lacquer. Key set movable pointer available at extra cost. Net weight of scale is 68 pounds. Bulletin giving complete specifications, describing commodity equipment and accessories and the several types of charts available is sent on request. Bulletin on "Computagram."

TOLEDO SCALE CO., Dept. CP, Toledo, Ohio.

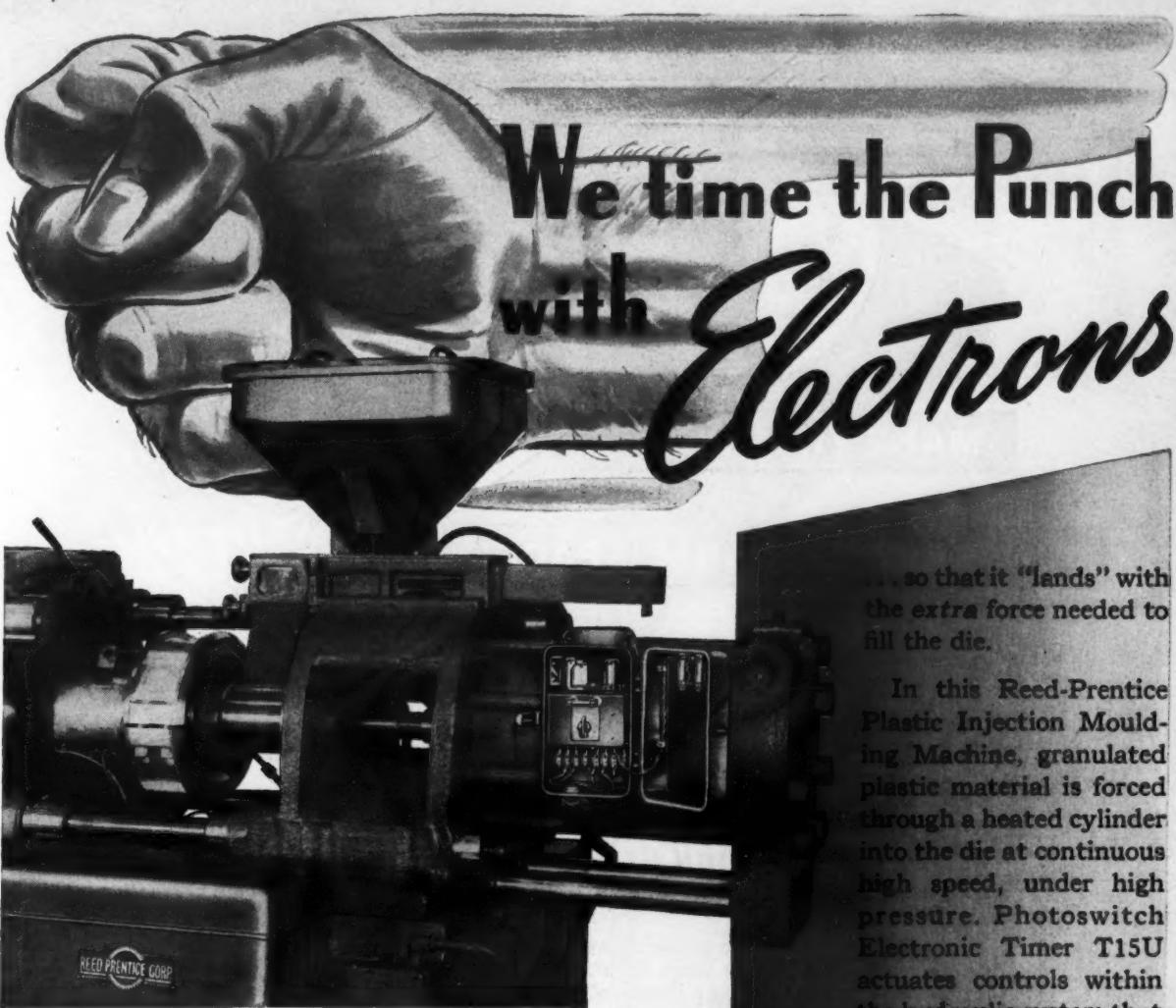
When inquiring specify CP A128 — see information request blank, pgs. 2-3

### Signalling Conductivity Controller

Instruments for making precise conductivity measurements in laboratory and plant are described in illustrated booklet. It includes data on methods of measurement and notes for selection and use of apparatus. This is a revised edition and among its new items numbers a signalling conductivity controller and new industrial cells.

LEEDS & NORTHRUP CO., Dept. CP, 4934 Stenton Ave., Philadelphia, 44, Pa.

When inquiring specify CP A129 — see information request blank, pgs. 2-3



... so that it "lands" with the extra force needed to fill the die.

In this Reed-Prentice Plastic Injection Moulding Machine, granulated plastic material is forced through a heated cylinder into the die at continuous high speed, under high pressure. Photoswitch Electronic Timer T15U actuates controls within the hydraulic system that provide maximum pressure, at the exact instant, with the fractional second timing required to complete the injection stroke.

### Why Electronic Timing is the Best Answer for Split-Second Repeat-Cycle Accuracy

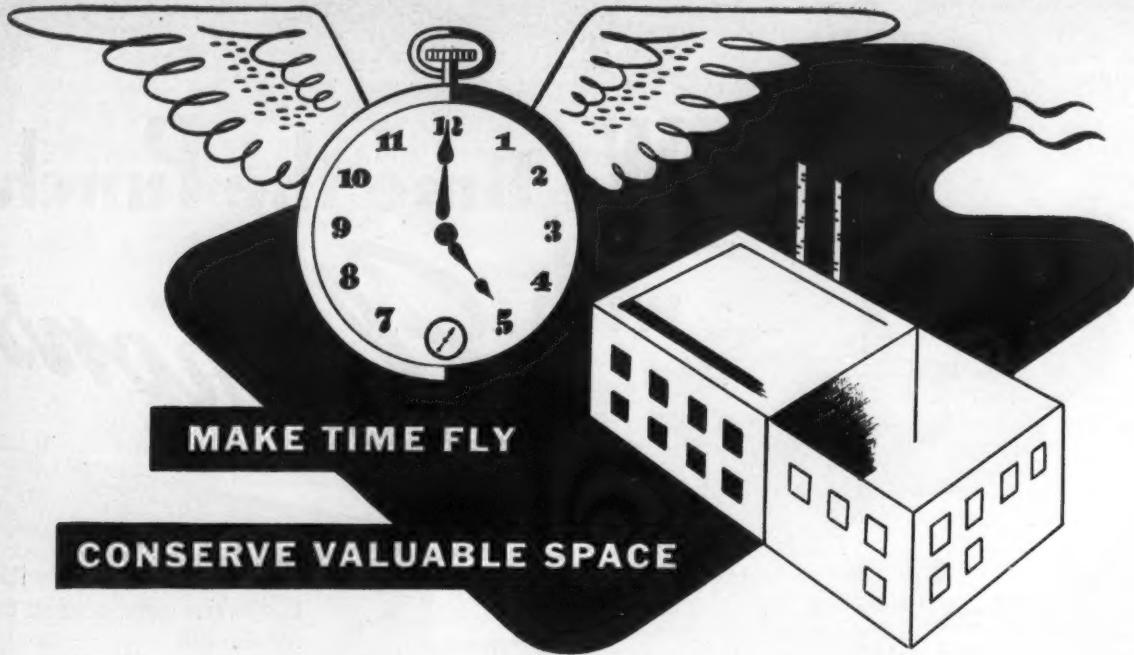
Photoswitch Electronic Timers function with split-second accuracy ... without fatigue ... frictional wear ... or inertia. Electronic operation eliminates clockwork, springs, mechanical clutches ... all moving parts subject to wear and failure ... provides consistently accurate control without danger of speed-up or slow-down, and with extremely long life assured. Photoswitch Electronic Timers are used extensively to initiate automatic operation of precision production grinders, millers, profilers and other machine tools; to insure maximum safety and efficiency in X-ray equipment; to provide split-second control in welding, molding, spraying ... and to afford the high degree of accuracy needed in process control.

Write to  
Cambridge 42, Massachusetts  
PHOTOSWITCH, INCORPORATED  
for Bulletin 900-A.

**PHOTOSWITCH**  
INCORPORATED

PHOTOELECTRIC AND ELECTRONIC CONTROLS FOR EVERY INDUSTRIAL PURPOSE

When inquiring specify CP A130 . . . see information request blank, pgs. 2-3



## with AT&M CENTRIFUGALS



### EXTRACTION

AT&M Centrifugals 10 times as fast

By sheer force . . . many times greater than gravity, AT&M centrifugals have put wings on processing time to the great advantage of hundreds of manufacturers. They have been proven much faster for drying than filters, squeeze rolls, vacuum or suction boxes, or drying ovens.

AT&M centrifugals accomplish separation of materials so finely divided that they would never separate by gravity. They will even separate emulsions and some colloidal suspensions. Frequently AT&M centrifugals do two operations in one.

A very hush order for a special AT&M centrifugal, which requested that blueprints be kept under lock and key whenever not in use, resulted in

1. 95% recovery of a substance never before centrifuged.
2. Cut time for each batch from seven minutes to 35 seconds.

Consult AT&M for experienced engineering service (as war needs permit)  
— no charge for study and recommendation. Strict confidence preserved.



### FILTRATION

AT&M Centrifugals double production — no extra space

In place of unwieldy drying equipment—space-consuming tanks or slow, costly squeeze rolls, vacuum boxes or ovens—AT&M centrifugals are efficiently separating crystals from sticky fluids or, in one operation, 2 liquids from a solid—faster, cheaper, and in much less space. The space required for an AT&M Centrifugal, belt-driven, with a 36" basket, is only 6½ feet high, 4 feet wide and 8 feet deep.

One manufacturer converting for war found that limited head-room prevented centrifugals larger than 36". There was no additional floor space available yet expansion was imperative. AT&M engineers were consulted. Upon their recommendation he installed five 36" centrifugals. By quicker acceleration of the motor drives, production was doubled.

Investigate centrifuging for extraction . . . filtration . . . dehydration . . . precipitation . . . impregnation . . . coating

SAVE TIME  
and SPACE with

# A.T. and M. CENTRIFUGING

AMERICAN TOOL & MACHINE COMPANY 1425 Hyde Park Ave., Boston 36, Mass.  
30-D Church Street, New York 7, N. Y.

When inquiring specify CP A131 . . . see information request blank, pgs. 2-3

## INSTRUMENTS

### Refractometer In 3 Models With Or Without Compensating Prisms

Abbe type instruments provide means of controlling many processes



Uses — Determining the refractive index and dispersion of liquids and solids, in the dairy laboratory to detect the dilution of milk with water, to estimate sugar in sweetened milk, casein in skim milk, etc. Canners determine the total dissolved solids in tomato products, jams, jellies, eggs, etc. Useful for determination of fat in meal and cocoa products. In distilling applications for checking alcoholic content and for determining total solids in solution. Petroleum: Used for control of fractionation and estimation. Paint and

Varnish: Used in identification of oils, the control of heat treatment, of oxidation, of hydrogenation and in determination of the purity of solvents. Chemical: As an aid in the identification of many transparent liquids and solids, for process control where chemical changes, show corresponding changes in refractive index; also in pharmaceutical, optical and plastic applications.

Features — The maker is offering three new refractometers that are Abbe type instruments but having no compensating prisms. These are used with a monochromatic light and provide extremely sharp dividing line which facilitates setting of the arm. (Durable leatherette covered wood cabinet is included with all instruments.) Very little material is needed to obtain a refractive index reading and results are obtained immediately.

Description — Six types in all are available. There are three instruments with different scales, either with or without Amici prisms. The scales are graduated so that the refractive index (nd) can be read directly to the third decimal place and can be estimated in the fourth. All scales are graduated directly in indices of refraction for the D line of the sodium spectrum. The scale supplied with the first of these instruments is graduated in refractive index from 1.3 to 1.71 and numbered so that it can be read from either side. The second instrument covering the same range has a combination scale which reads directly in percentage of sugar in solution as well as refractive index. The third has a special high index scale covering a range of 1.45 to 1.84. The refractometers without Amici compensating prisms are available for use with monochromatic light for those who prefer utmost precision in an Abbe type instrument. Special correction charts will be supplied on request for use with a mercury vapor lamp or hydrogen discharge tube as the light source. Instruments with Amici prisms are produced for those who wish to work with white light. Water jackets around the base prism and the illuminating prism provide a means

## INSTRUMENTS

for controlling temperature. A glass test block, a thermometer, and a small bottle of monobromonaphthalene for making immersion contacts in measuring solids are supplied with each instrument. Bulletin on request.

SPENCER LENS CO., Dept. CP, Buffalo 11, N. Y.

When inquiring specify CP A132 — see information request blank, pgs. 2-3

## Micromanometer for Checking and Calibrating Instruments

For use on low pressure instruments and as convenient manometer for reading pressures and vacuums; reading to + or - .001" water pressure

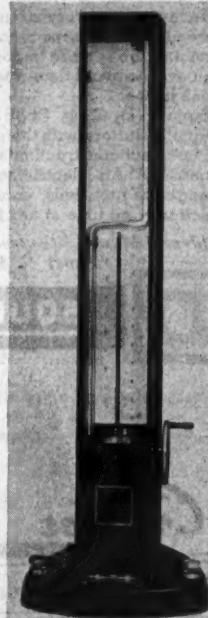
**Uses** — For checking low pressure and vacuum gauges, draft gauges, inclined manometers, and low pressure diaphragm or bellows controls, and as a convenient manometers for reading pressures and vacuums.

**Features** — It is a very sensitive manometer measuring pressures, vacuums or differential pressures to an accuracy of 0.001 ins. of water pressure. Simple operation.

**Description** — This model (A-750) micromanometer (operates on "null-balance principle") is of special well type manometer design incorporating a movable well in the vertical plane by means of a precision lead screw. The vertical distance traveled by the instrument well is measured by means of an indicator pointer attached to the well, moving along a uniformly graduated scale and a micrometer wheel attached directly to the lead screw. The lead screw is rotated by means of an operating wheel at the base of the instrument through a gear mechanism. For the initial adjustment of the indicating fluid meniscus in the sloping portion of the indicating tube, the instrument well is adjustable vertically, independent of the operating lead screw. Standard  $\frac{1}{4}$  N.P.T. pressure connections are provided at the top of the unit. Independent connections permit micromanometer operation under pressure, vacuum or differential pressure conditions. The instrument is designed for only water solutions as the indicating fluid. The unit cannot be used with mercury in the indicating tube because of brass parts used. Indicating fluid concentrate is furnished and will prepare one quart of finished water solution. This model is available in standard ranges of 10 ins. and 20 ins. of water pressure. Accessories: For observation of the temperature of the indicating fluid a thermometer can be furnished. The mercury thermometer is graduated in degrees Centigrade and is mounted inside the instrument case. For amplification of the indicating fluid meniscus a magnifier can be furnished. The magnifier unit mounts to the side of the instrument case on a suitable swivel bracket. Bulletin 25 describes the instrument and its operation in complete detail.

MERIAM INSTRUMENT CO., Dept. CP, 10920 Madison Ave., Cleveland 2, Ohio.

When inquiring specify CP A133 — see information request blank, pgs. 2-3



CALIBRATES low pressure instruments



## "Secret ingredient" makes synthetic rubber better and faster!

[ Bu + Na + S + Taylor Accuracy = better synthetic rubber . . . on schedule! ]

RECENTLY we showed you Taylor Instruments at work in the huge butadiene and copolymer plants at Port Neches, Texas. Here are typical scenes from the Los Angeles and Velasco, Texas, plants operated by Dow Chemical Company, principal supplier of styrene for the synthetic rubber program.

We're proud of the experience and knowhow that produced the Taylor Instruments capable of performing this exacting task.

But we're proudest of the people here in our plant who took on the impossible job of delivering the instruments on time—a job that inspired the WPB to tell us, "The age of miracles has not yet passed!"

If you could visit these Dow styrene plants, you would see:

**TAYLOR RATE-OF-FLOW PNEUMATIC TRANSMISSION SYSTEMS** involving the following . . .

**Taylor Aneroid Flow Recorders and Controllers** (hundreds of them). The controllers with **Automatic Reset**; some with **Taylor Pneumatic Set**.

**TAYLOR TEMPERATURE PNEUMATIC TRANSMISSION SYSTEMS** with **Taylor Fulslope Recording Temperature Controllers** (scores of them), with **Automatic Reset**, and

**Pro-Act** (corrects according to rate of control point deviation). The mercury actuated temperature systems having

**Taylor Accuratus Tubing** (compensated for ambient temperatures) and **Taylor Thermospread** separable well constructions.

**TAYLOR MERCURY TYPE FLOW RECORDERS**

**TAYLOR FULSCOPE RECORDING PRESSURE CONTROLLERS** with **Automatic Reset**

**TAYLOR MERCURY-IN-GLASS INDUSTRIAL THERMOMETERS** with **Binoc Tubing**

In short, you'd see better than we can tell you how Taylor can do a job for you! Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. **Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow and liquid level.**



**Taylor Instruments**  
MEAN  
**ACCURACY FIRST**

IN HOME AND INDUSTRY

When inquiring specify CP A134 . . . see information request blank, pgs. 2-3

CAMBRIDGE  
pH METER  
with  
ELECTRON-RAY  
NULL-INDICATOR



## No Battery Nuisance



Off Balance-Positive



Balance



Off Balance-Negative

Operated from any 110 volt A. C. outlet, the *Cambridge* is always "ready-to-go." This feature also permits the instrument to be turned on continuously during the day so that it is available for pH measurements immediately without the necessity of waiting through a warm-up period to obtain stability.

An outstanding improvement over the delicate pointer galvanometer usually used in pH Meters is the Cambridge Electron-Ray Null-Indicator. Producing a variable width beam on a fluorescent screen, this null-indicator permits quick hairline adjustment. Moreover, it cannot be injured by hasty, inexperienced or accidental mis-manipulation.

The entire instrument is self-contained and portable,  $8\frac{1}{2}'' \times 10'' \times 17\frac{1}{2}''$ .

- Range, 0-14 pH, 0-1200 mv.
- Accurate to .02 pH
- Reproducible to .01 pH
- Sensitive to .005 pH

**CAMBRIDGE INSTRUMENT CO., INC.**

3732 Grand Central Terminal

New York City

For complete information, send for Bulletin 910E

When inquiring specify CP A135 — see information request blank, pgs. 2-3

The null-point is quickly and precisely determined by adjusting the Electron-Ray beam to a narrow slit.

## INSTRUMENTS

### Temperature & Pressure Control Apparatus

Twenty-four page illustrated catalog in two colors is devoted to description and discussion of applications of complete line of temperature and pressure control apparatus. A fourteen inch illustration of a cut-away view of the company's temperature control switch is particular interest in connection with the highly practical data presented on the uses and features of this control. Various types have been designed for a range of requirements. The switch referred to may be used throughout the entire temperature from sub-zero to 1200 degrees F. A large section of the catalog is devoted to the subject — "Selection and Application of Thermoswitches." It is illustrated with charts and diagrams showing the basic principles involved in accurate temperature regulation. Testing and inspection procedure is also discussed. Catalog on request.

FENWAL INC., Dept. CP, 200 Pleasant St., Ashland, Mass.

When inquiring specify CP A136 — see information request blank, pgs. 2-3

### Photoelectric Densitometer

Densitometer for measuring the optical density of liquids, gases, films, filters, plastics and similar transparent materials is described in four page bulletin. The densitometers of this series—D90—are built to meet individual production control requirements. Bulletin 316 on request.

PHOTOSWITCH, INC., Dept. CP, 77 Broadway, Cambridge 42, Mass.

When inquiring specify CP A137 — see information request blank, pgs. 2-3

*Complete Accessibility*  
means faster, easier  
servicing of motor starters

All renewable parts of Square D AC electric motor starters can be inspected or replaced in a matter of seconds—using only a screwdriver.

Top operating efficiency and long life of electric motor starting equipment depend largely on regular inspection and occasional servicing.

Today—with every minute at a premium—this inspection and servicing job is more important than ever to avoid time-wasting breakdowns.

Square D Class 8536 AC magnetic starters, with their simple compact construction and vertical action, are completely accessible. An electrician, without special tools, can exchange magnet coils, contacts or overload relay units—in practically no time at all. Write for Bulletin 8536.

Address Industrial Controller Division, Square D Company, 4041 N. Richards St., Milwaukee 12, Wis.



**SQUARE D COMPANY**

DETROIT

MILWAUKEE

LOS ANGELES

When inquiring specify CP A139 — see information request blank, pgs. 2-3

*Cramer*

### Multi-Contact Timers



Type MCD

With solenoid operated start mechanism for remote control.

These can be controlled to go through a complete cycle or any part and step.

Reclosing momentary start button will either continue or repeat cycle, as desired. Can be arranged so that in event of power interruption, it is necessary to again press button to continue cycle, or after power is restored to automatically continue cycle of operation.

Send for Bulletin 3000.



Type MCA

When inquiring specify CP A140 — see information request blank, pgs. 2-3

**CHEMICAL PREVIEW**

**ELIMINATE**

**IN PLANNING**

**FOR THE**

**FUTURE!**

Twenty years of skill and experience in the installation of laboratory equipment and furniture in over 10,000 of America's leading Industrial and educational laboratories—gives Steelab the impenetrable background on which you want to rely when planning and equipping your laboratory. Profitable results—maximum efficiency and serviceability—avoidance of unnecessary expenditure of time and money—are yours when you decide on Steelab. Engineers available to assist you in your planning—without obligation.

**SEND FOR FREE CATALOGUE AND MANUAL**

A complete 224 p. book containing over 800 highly detailed illustrations to guide you in designing and building your laboratory.

**LABORATORY FURNITURE COMPANY, INC.**

37-22 NORTHERN BLVD., LONG ISLAND CITY 1, N. Y.

## INSTRUMENTS

## CO<sub>2</sub> Indicator for Fast, Simple, Accurate Flue Gas Tests

CO<sub>2</sub> indicator and its uses in saving fuel are described in four page illustrated bulletin. A feature is a table showing causes and corrections of inefficient combustion. A simplified graph shows heat loss in relation to percentage of CO<sub>2</sub> in flue gases. The operation of the instrument is fully covered. Also described is a fire efficiency finder, a unique calculator that correlates stack temperature and CO<sub>2</sub> readings to show at a glance preventable stack loss in heating efficiency percentages. Bulletin 341 on request.

**BACHARACH INDUSTRIAL INSTRUMENT CO., Dept. CP,**  
7000 Bennett St., Pittsburgh 8, Pa.

When inquiring specify CP A141 — see information request blank, pgs. 2-3

# Handbook on pH Control Containing Data on Equipment and Chemical Reagents

An eighty-four page edition of handbook issued regularly by manufacturer of pH control equipment and chemical reagents entitled "The A, B, C of pH control" offers unusually complete and practical data of interest to those concerned with this factor in processing. Analysis of water, boiler feed water and field requiring specialized control.

La MOTTE CHEMICAL CO., Dept. CP, Towson 4, Baltimore,  
Md.

When inquiring, specify CP A143 — see information request blank, rec. 2-3.

## Damper Permits Flow in Either Direction Regardless of Position

*Employs two curtains tied together mechanically so as to operate simultaneously*



#### DAMPER FOR BY-PASS CONTROL

under control. Banking losses are reduced and accurate regulation of natural draft obtained.

**Description** — This reverse flow damper for by-pass control employs two curtains for regulating the gas flow in either direction. The curtains are tied together mechanically so as to operate simultaneously. This permits the flow in either direction regardless of damper position. This damper type DVHR can also be used successfully in cross-over air ducts between forced draft fans. Complete details on request.

THERMIX ENGINEERING CO., Dept. CP, Greenwich,  
Conn.

When inquiring specify CP A143 — see information request blank, pgs. 2-3.

# MASONEILAN NO. 27 REGULATORS

# Provide an accurate pressure "Reducing-Diet"

In thousands of installations . . . throughout the chemical, refining and natural gas industries . . . Masoneilan No. 27 regulators are providing accurate, positive control of pressures. And best of all, they keep up this precise control . . . year after year . . . without continual adjustment for load changes, without control time lag, without shift from control setting between full, open and closed.

Investigate Masoneilan No. 27 pressure regulators.

They are built for controlled pressures between 5 and 1800 psi.



## **MASON-NEILAN REGULATOR CO.**

**1203 ADAMS ST., BOSTON 24, MASS., U.S.A.**

**New York Philadelphia Pittsburgh Tulsa Toledo Chicago Atlanta St. Louis  
San Francisco Los Angeles Houston Mason Regulator Co. of Canada, Ltd., Montreal**



When inquiring specify CP A144 . . . see information request blank, pgs. 2-3

EASY TO READ  
DIAL  
THERMOMETER

Economize with **POWERS**  
TEMPERATURE REGULATORS

Use a Powers No. 11 Temperature Indicating Regulator when you want the advantages of an easy-to-read dial thermometer combined with a dependable self-operating regulator. The dial thermometer gives a visual check on the performance of the regulator and makes it easy to adjust for the required operating temperature. Various dials and ranges are available.

Is Easy To Install — because both the thermometer and the regulator operate from the same thermal system — only 1 tapped opening is required. Write for Circular 2511.

**THE POWERS REGULATOR CO.**  
2795 Grandview Avenue, Chicago 34, Illinois  
231 E. 56th St., New York 17, N. Y.—Offices in 47 Cities . . . See your phone directory.

CONTROLS HEATING OR COOLING MEDIUMS

**POWERS**

OVER 50 YEARS OF AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL

When inquiring specify CP A146 — see information request blank, pgs. 2-3

**Avoid Hidden Dangers**  
OF PRESENT AND POST-WAR MATERIALS  
WITH **Taber**  
**ABRASER**

Expensive mistakes can be eliminated by a Taber Abraser which tests wear quality of surface finishes and fabrics.

The scientific wear action by "Calibrase" wheels is recorded as "wear cycles" that are totalled on built-in cycle counter.

Learn how to guard against complaints and rejections by writing for Bulletin 4012 NOW.

**TABER INSTRUMENT CORP.**  
511 GP GOURDY ST., NO. TOHAWANDA, N.Y.  
Designers and Builders of Precision and Scientific Apparatus

When inquiring specify CP A146 — see information request blank, pgs. 2-3

## INSTRUMENTS

### Dielectric Meter for Moisture Measurement

110 v., 50-60 c., 110v., 25 c., 220 v.,  
50 & 60 c., 220 v., 25c.  
not for direct current

**Uses** — Measuring the moisture content of powdered and granular materials such as dehydrated foods, flours, etc.

**Features** — Electrically simple but extremely sensitive. Determination can be made in two minutes and less.

**Description** — This dielectric type moisture meter is designed for the precise measurement of the dielectric property of a test sample. The sensitivity is not only the result of a unique electronic method but also advantage is taken of the fact that dielectric constant of water is about 80 while that of most common substances is less than 10. Thus, a slight change in moisture content has a marked effect in nearly all cases on the dielectric constant of a substance. The electronic circuit of the instrument consists of two oscillating circuits loosely coupled, one at a crystal controlled frequency and the other adjustable to this standard. This second adjustable circuit includes regeneration to combat the power absorption in test samples. The frequency of the adjustable circuit can readily be set to a few parts in a million. The difference from the standard frequency is indicated by a tuned beat frequency indicator with which a few beats per second are readily detected. In using the instrument a test sample weighed into a bakelite cell is placed between the two plates of a condenser in the adjustable circuit. Then the change in capacity is matched by adjusting a calibrated condenser carrying the main instrument. This restores the frequency of the circuit to that of the standard crystal. Readings easily translated into moisture content. Furnished ready for use. Literature on request.

C. J. TAGLIABUE MFG. CO., Dept. CP, Park & Nostrand Aves., Brooklyn 3, N. Y.

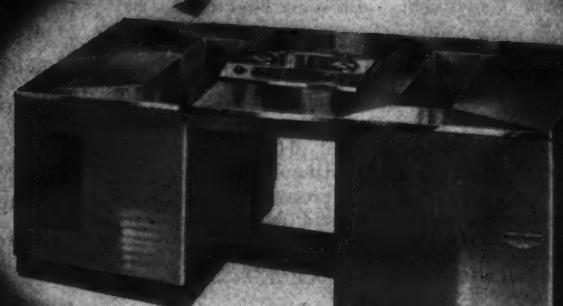


DIELECTRIC MOISTURE METER

When inquiring specify CP A147  
— see information request blank, pgs. 2-3

## SUB-ZERO

for your  
RESEARCH LABORATORY



Sub-zero temperature processing has opened new vistas in the metallurgy of steel. Likewise in the crystallization of certain compounds, in the production of organic compounds such as dyestuffs, nitrocellulose and fine chemicals — also in the distillation of petroleum.

Have you investigated the possibility of using accurately controlled sub-zero temperatures in the processing and testing of your products? You can do this by providing your laboratory with a dependable Kold-Hold sub-zero or a dual temperature machine. You can then investigate processes over a temperature range from 200° F. down to -90° F. or lower.

Write for descriptive data on these units.

## KOLD-HOLD

440 NORTH GRAND AVENUE  
LANSING 4, MICHIGAN

When inquiring specify CP A148 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## INSTRUMENTS

### Dust and Moisture Proof Panel Mounted Time Delay Relay

For protection of transmitter and electronic tubes



TIME DELAY RELAY

**Uses** — To meet the demand of the electronic industry for the protection of transmitter and electronic tubes.

**Description** — It has a cam operated mechanism and is mounted in dust and moisture proof bakelite case for panel mounting. It has a visible index showing open and closed position by means of a graduated indicating dial. It has 4 screw type terminals for motor and

switch circuits. The dimensions of this relay are 3½ inches in diameter, by 2 15/16 thick and the flange diameter is 3½ inches meter standard, a very important factor. The time scale is 2-225 seconds, operating voltage 110 or 220. The frequency ranges are 50 or 60 cycles.

R. W. CRAMER CO., Dept. CP, Centerbrook, Conn.

When inquiring specify CP A149 — see information request blank, pgs. 2-3

### Wet Type Abraser Specimen Table

Holds water to cover specimen in wet tests



VIEW of table, wheels, counter

**Description** — The specimen table holds a sufficient amount of water to cover the specimen when performing wet tests. The wearing action is performed by dual Calibrase wheels bearing against the specimen under constant pressure, revolving in opposite directions, one sliding radially toward the outside, the other sliding toward the inside of the wear path. Each wheel revolving at a steady, constant speed through contact with the specimen, exerts a combined abrasive, compressive and twisting action twice in each revolution. As the specimen holder travels a complete 360 degree circle, the wear due to differences of grain or weave are fully revealed. A standardized local adjustment is provided for varying the pressure of the Calibrase wheels against the specimen so the abraser will test both the delicate and tough materials with equal precision. Detailed information on request. Bulletin 4012.

TABER INSTRUMENT CORP., Dept. CP, No. Tonawanda, N. Y.

When inquiring specify CP A150 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## CONSTANT TEMPERATURE WATER BATHS



S-84805—0.01°C Constant Temperature Water Bath

**T**WO models are available, one provides a temperature uniformity of 0.01°C and the other, a temperature uniformity of 0.25°C. Common to both baths is the circulating and heating system upon which depends their excellent performance and field service record. The heating-circulating system consists essentially of motor, tower, impeller and heating units, all assembled as a single compact unit. By means of this arrangement, heat is correctly applied to the water at the point of its most rapid circulation. As shown above, water is forced up the tower where it passes over the heating elements and is then radially ejected at the top of the tower producing fast, uniform circulation of the entire volume which is necessary for absolute temperature uniformity throughout every area of the bath.

#### S-84805 0.01°C CONSTANT TEMPERATURE WATER BATH (Pat. No. 2,037,992)

Consisting of the container, the central circulating and heating unit with motor, the Sargent mercurial thermoregulator, a cooling coil and constant level device, the Sargent Zero Current Relay Unit complete with cord and plug for connection to standard outlet and with armored connecting cable for connection to the water bath. Temperature range, from several degrees above that of the cooling water to about 60°C. Diameter, 16 inches; height, 10 inches; water depth, 9½ inches; temperature uniformity,  $\pm 0.01^\circ\text{C}$ . For operation from 115 volt, 60 cycle single phase circuit ..... \$150.00

S-84815 Ditto. But for 115 volt D.C. circuit ..... 155.00

S-84825 Ditto. But for 230 volt, 60 cycle, single phase circuit ..... 150.00

S-84835 Ditto. But for 230 volt, D.C. circuit ..... 155.00



S-84860—0.25°C Constant Temperature Water Bath

← Heating-circulating tower contains impeller and heating units. This design provides for efficient circulation, heat transfer and temperature uniformity.



Both baths also provide a high ratio of unobstructed working space to overall size by concentrating control equipment within a small area.

The baths are easy to clean and assemble. The heating-circulating system of each model does not incorporate clamps or supporting devices of any kind. These integral units are merely lifted out of the glass containers.

Immersed vessels are fully visible through the transparent walls of the Pyrex glass containers. Measurements of capillary rise, liquid flow, etc., by cathetometer or by simple unaided observation under water level can be made with undiminished accuracy.

#### S-84860 0.25°C CONSTANT TEMPERATURE WATER BATH

Consists of central circulating and heating unit which includes motor and linear expansion type thermoregulator with temperature reference dial to facilitate selection of temperatures, cooling coil, constant level device, Pyrex glass container, and cord and plug for connection to standard outlet. Height of Pyrex jar, 12 inches; depth, 12 inches; water depth, 11 inches. Motor, thermoregulator, and heating and circulating tower are all conveniently and compactly mounted in a one-piece lightweight casting which rests upon the rim of the glass container. Temperature range, from several degrees above that of the cooling water to about 60°C; temperature uniformity  $\pm 0.25^\circ\text{C}$ . For operation from 115 volt, 60 cycle circuits. \$80.00

E. H. SARGENT & CO., 155-165 E. Superior St., Chicago, Illinois

Michigan Division: 1959 East Jefferson, Detroit, Michigan



When inquiring specify CP A151 . . . see information request blank, pgs. 2-3



## PORT NECHES

where many

### ASCO

Solenoid Valves  
Control Numerous  
Operations

Refineries can count on two valves when buying ASCO Solenoid Valves for controlling operations of equipment handling liquids or gases.

Value one is sure, dependable action

Value two is sure, explosion-proof design

ASCO Solenoid Valves have back of them an engineering and manufacturing experience dating back some thirty years during which time not only refineries but all other process industries as well as marine and power fields have been furnished with solenoid valves. Explosion-proof types furnished refineries are Underwriter's listed for Class I, Group D, Hazardous Locations.

In your revisions, replacements or new constructions, plan to use ASCO Solenoid Valves. We have an exceptionally wide variety of types and sizes from which to select.



We also manufacture a complete line of Automatic Transfer Switches, Remote Control Switches, Contactors and Relays.

## Automatic Switch Co.

47 East 11th Street

New York 3, N. Y.

When inquiring specify CP A152 — see information request blank, pgs. 2-3

## INSTRUMENTS

### Unit Combines Seven Compressor Control Devices in One

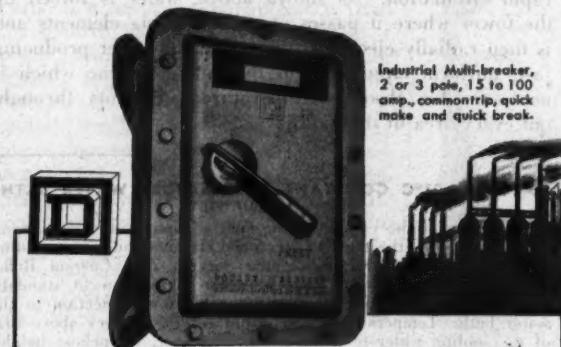
Eliminates necessity of using pipe and pipe fittings; reduces chance of air leakage



CONTROL  
UNIT

**Uses** — Combines seven devices for the control of compressor operations into a single, neat, compact unit.

**Description** — It eliminates the necessity of using pipe and pipe fitting, simplifying installation and reducing the possibility of air leakage. The "Compressor-trol" is made in three sizes,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and  $1\frac{1}{4}$  inch. Sizes determined by inlet connection. To cover all requirements of tank mounted compressors up to 15 HP or 60 cu. ft. per minute. Equipped with Ashcroft Duraswitch with either an electric or mechanical attachment for operating the two way unloading valve mounted on the "compressor-trol" casting. Muffler on compressor discharges into tank. Muffler acts to break-up discharge and to disperse the air in a manner which insures adequate mixing with the cooler gases in the tank to reduce the temperature and moisture content before delivery. The combined Duraswitch and gauge have a heavy duty gearless movement, slide rule dial, a horizontal self-draining and non-freezing Bourdon tube, and the entire



### MULTI-BREAKERS

#### FOR HAZARDOUS LOCATIONS

• Square D has broadened its line of cast explosion-proof Multi-breakers—in pace with current wartime requirements. In shell loading, powder, processing and synthetic rubber plants—wherever explosion and fire hazards exist, these Multi-breakers afford low-cost circuit breaker protection. All Class I, Group D enclosures are tested individually at 450 pounds hydrostatic pressure—an added assurance of their strength and stamina on the job. The line also includes enclosures for Class II, Group G locations.

Write for descriptive bulletin. Address Square D Company, 6060 Rivard St., Detroit 11, Michigan



SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A153 — see information request blank, pgs. 2-3



### with the BARNSTEAD Purity Meter

It's the easiest way yet. You simply set the smaller dial on your Barnstead Purity Meter for the temperature of your distilled water. Then you turn the larger dial until the meter's radio eye tells you that you're "tuned in". And there on this dial is your purity reading in parts per million as sodium chloride.

Nothing could be easier. Nothing could be better for those who want to keep a regular check on the quality of their distilled water. The Purity Meter connects directly to 110 volt 60 cycle line — no batteries are used.

Write for bulletin on this low cost Barnstead Purity Meter or ask your laboratory supply dealer.

**Barnstead**  
STILL & STERILIZER CO. INC.  
66 Lanesville Terrace, Boston 31, Mass.

When inquiring specify CP A154 — see information request blank, pgs. 2-3

## BARBER-COLMAN

### AUTOMATIC CONTROL SYSTEMS SAVE FUEL

These bulletins describe three Barber-Colman Temperature Control Systems which will save fuel by preventing waste of heat through automatic maintenance of uniform temperature.

**Fuel-Saving Starts With CONTROL**

Barber-Colman equipment is engineered to provide efficient fuel-saving control in all types and sizes of buildings. Write for copies of these circulars today and join the vital fuel-saving program.

**BARBER-COLMAN COMPANY**  
1201 ROCK ST. • ROCKFORD, ILL.

When inquiring specify CP A155 — see information request blank, pgs. 2-3

**CHEMICAL PREVIEW**

## INSTRUMENTS

gauge is completely removable and replaceable in case of accidental damage. It can be furnished in all standard pressure ranges. Catalog on request.

MANNING, MAXWELL & MOORE, INC., Dept. CP, Bridgeport 2, Conn.

When inquiring specify CP A156 — see information request blank, pgs. 2-3

### High or Low Pressure Steam Air Eliminator

Small folder illustrates and describes high and low pressure steam air eliminator for service on steam heating systems. The type 8 meets need for elimination of entrapped air in steam systems, processing machines, driers etc. Type 8 has adjustable seat for valve venting. It is high pressure, automatic, two inch diameter, three quarter inch connection. Selection includes stimulator, and line valve.

RISSELT MFG. CO., Dept. CP, 7th & Main Sts., Cincinnati 2, Ohio.

When inquiring specify CP A157 — see information request blank, pgs. 2-3

### Ammeters, Voltmeters, Wattmeters

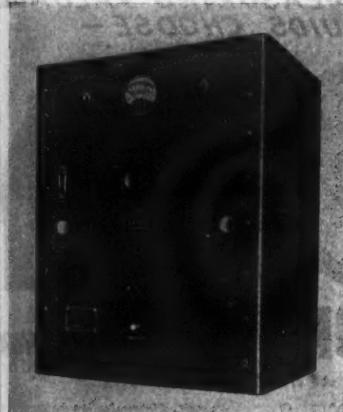
Thirty-two page file size catalog illustrates and describes ammeters, voltmeters and wattmeters. The complete selection includes portable ammeters, rectangular switchboard ammeters, round switchboard ammeters, microammeters, milliammeters, millivoltmeters, ohmmeters, shunts.

NORTON ELECTRICAL INSTRUMENT CO., Dept. CP, Manchester, Conn.

When inquiring specify CP A158 — see information request blank, pgs. 2-3

### Voltage Breakdown Tester

Operates directly from 110 - 130 v., 50/60 c. AC line



BREAKDOWN TESTER.  
0-10,000 v DC

v., DC or 0 to 8,000 AC. A lower range model (P-1) with sloping panel has range 0 to 4,000 v.DC or to 3,000 v.AC. Voltage is continuously variable over the entire range. Panel light indicates when instrument is "ON". Breakdown is indicated by red signal light and built-in meter indicates direct-reading voltage. Current limiting resistors safeguard equipment in event of dead short, by limiting current to approximately 50 milliamperes. Uniformity over entire range of P-3; 5 milliamperes on P-1. Cabinet of P-3 measures 15x21x28" h.

INDUSTRIAL INSTRUMENTS INC., Dept. CP, 17 Pollock Ave., Jersey City, N. J.

When inquiring specify CP A159 — see information request blank, pgs. 2-3



**D**o you know  
about this fast

## Combustion Tube Furnace by Lindberg?

**U**ses — Safe and quick means of testing voltage breakdown of materials or components. Features — To speed up production drawer switch type fixtures are available. These fixtures have a jig to take given components or materials, and when the drawer is closed the voltage is applied, with absolute safety to operator. Description — Operating range of this instrument (Type P-3) is 0 to 10,000

v., DC or 0 to 8,000 AC. A lower range model (P-1) with sloping panel has range 0 to 4,000 v.DC or to 3,000 v.AC. Voltage is continuously variable over the entire range. Panel light indicates when instrument is "ON". Breakdown is indicated by red signal light and built-in meter indicates direct-reading voltage. Current limiting resistors safeguard equipment in event of dead short, by limiting current to approximately 50 milliamperes. Uniformity over entire range of P-3; 5 milliamperes on P-1. Cabinet of P-3 measures 15x21x28" h.

A built-in transformer provides current to three low voltage high temperature Globar type heating elements which are simple to replace. Furnace is quickly brought to heat and precise control holds any desired temperature.

Mounted on face of furnace is a line shut-off switch, an "on" signal light, a pyrometer connected to a Platinum —13% Rhodium thermocouple, an ammeter showing percentage of rated power input, "coarse" and "fine" knobs for controlling transformer voltage and a needle valve oxygen regulator.

Ask your laboratory equipment dealer for full information. Also, ask him for details about the Lindberg Box Type Furnaces, the Pot-Crucible Furnaces and Hot Plates to meet every laboratory need.

**LINDBERG ENGINEERING COMPANY**  
2450 WEST HUBBARD STREET • CHICAGO 12, ILLINOIS

**LINDBERG**

WELL KNOWN THROUGHOUT THE WORLD AS  
LEADERS IN DEVELOPING AND MANUFACTURING  
INDUSTRIAL HEAT TREATING EQUIPMENT



SOLD EXCLUSIVELY THROUGH LABORATORY EQUIPMENT DEALERS

When inquiring specify CP A160 . . . see information request blank, pgs. 2-3

"THE STANDARD



*This isn't just  
our own appraisal!*

For many years this expression has been associated with Marsh Gauges and Dial Thermometers.

We call it an expression, rather than a slogan, because slogans are trumped up. This expression simply came up. We enclose it in quotation marks because it expresses the feeling of hundreds of users toward Marsh instruments. Marsh instruments have become the standard of comparison; Marsh is "the standard of accuracy".

When a product reaches such a position, few people ask how it got there. But if you ever take the trouble to check back over the many years during which Marsh has been making gauges, you will find that there is no mystery about it.

You will find that Jas. P. Marsh Corporation has not only shown the way in big developments, but has always given more attention to the small details . . . that count most. You will find, moreover, that this fidelity of detail is not confined to the more expensive instruments, but is common to all Marsh equipment in relation to the service for which it is built.

Why settle for less than the instruments that set the standard?

JAS. P. MARSH CORPORATION  
2095 Southport Avenue, Chicago 14, Illinois

### THE GAUGE WITH THE "RECALIBRATOR"

A gauge built to Marsh Standards is not likely to be knocked out of adjustment. But if it is, the Marsh "Recalibrator" will quickly restore its accuracy. Simply turn the "Recalibrator" screw until the pointer is at zero when not under pressure. The gauge will then be right at all points on the dial. Unlike other methods of resetting, the "Recalibrator" gets at the root of the error—restablishes the relation of bourdon tube to movement—actually recalibrates the gauge.

When inquiring specify CP A161 — see information request blank, pgs. 2-3

Page 24

## INSTRUMENTS

### Mounting & Portable Pyrometers, Resistance Thermometers, Air Velocity Meters

A complete line of pyrometers including single and multi-point types is shown in four page bulletin. These are adapted for heat treating and annealing furnaces, kilns, galvanizing vats, etc. Also featured are portable pyrometers. Also briefly described are a velocity meter and electrical resistance thermometers. Bulletin 2982 on request.

ILLINOIS TESTING LABORATORIES, Dept. CP, 420 N. La Salle St., Chicago 10, Ill.

When inquiring specify CP A162 — see information request blank, pgs. 2-3

### Needle Pyrometer Gives Instant Preform Temperature Reading

Needle model one of several for various tests; combination models available

**Uses** — For quick, accurate, temperature determination in plastics, rubber, paper, textile, electrical, steel and other industries where the temperature of moving, still, curved and flat surfaces is desired. Sub-surface temperatures of rubber and plastic masses; obtaining temperature of preforms heated by high frequency current when either thermo-setting or thermo-plastic materials are used.

**Description** — In addition to the needle pyrometer, this maker produces roll, extension and mold models, each of which is designed for a special purpose. The roll model is used to determine the temperature of mill and calender rolls in the rubber industry, coating and baking of sheet

metals, etc. See bulletin 2982 for details.

Specify

## ELECTRONICS

in your  
thermometer  
controller  
for

### MAXIMUM CONTROL EFFICIENCY



The Wheelco Therm-otrol gives you the instantaneous control action of the famous "Electronic Principle" of control — void of lag time. The Therm-otrol is available as an Indicating or Recording Thermometer Controller. Chronotrol (Program Control) or Flame-otrol (Electronic Combustion Safeguard) may be integrally included. Full details on all models are given in Bulletin G23 — Write for your copy.

A complete line of Wheelco Resistance Thermometers are also available as Indicators or Indicating Controllers.

### WHEELCO INSTRUMENTS COMPANY

841 West Harrison Street Chicago 7, Illinois  
Creators of "Electronic Principle" Temperature Controllers

When inquiring specify CP A163 — see information request blank, pgs. 2-3

Marsh Pyrometer, electric-type controller door open and panel swung out.



### BRISTOL'S PYROMASTER SELF-BALANCING POTENTIOMETER WITH MANY NEW FEATURES

All parts accessible even when operating. Standard cell. High torque motor. Totally enclosed relays and galvanometer. Enclosed tarnish-resistant slide-wire. Easily-read straight-line scale.

Bulletin P1200 describes PYROMASTER Pyrometers for temperatures up to 3600°F. — controllers, recorders, indicators.

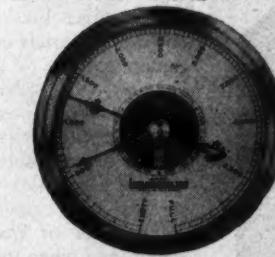
Write The Bristol Company, 141 Bristol Road, Waterbury 91, Conn.



### AUTOMATIC CONTROLLING AND RECORDING INSTRUMENT

When inquiring specify CP A164 — see information request blank, pgs. 2-3

### THOSE WHO CAN'T AFFORD TO MAKE ERRORS IN MEASURING VALUABLE STORED LIQUIDS CHOOSE —



### LIQUIDOMETER Tank Gauge

"THEY'RE ALWAYS DEPENDABLE"

100% automatic.

No pumps, valves, or auxiliary units needed to read them.

Models available for either remote or direct readings.

Accuracy unaffected by specific gravity of tank liquid.

Approved by Underwriters' Laboratories for gauging hazardous liquids.

Write for complete details.

THE LIQUIDOMETER CORP.  
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring specify CP A165 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## INSTRUMENTS

metals; in textile dryers and finishing rolls and paper mill dryers and calenders. The extension roll-model has many of the same uses as the roll model but was designed primarily to enable the user to obtain the temperatures of inaccessible surfaces. The mold model is used in the plastics field to obtain the surface temperature of molds. The needle model is used to obtain subsurface temperatures. A reading is obtained by inserting needle into the preform. Thus a means is provided for adjusting the time cycle of the preheater for close temperature control. The instrument may also be used for checking the uniformity of heating throughout a single preform. Combination models are available which have interchangeable roll, mold and needle thermocouple attachments. Detailed information regarding all these instruments on request.

CAMBRIDGE INSTRUMENT CO., INC., Dept. CP, 3732 Grand Central Terminal, New York 17, N. Y.

When inquiring specify CP A166 — see information request blank, pgs. 2-3

### Boiler Controls and Accessories

First issue of manufacturer's quarterly publication features an article emphasizing the Nitralloy steel plungers used in seamless blow off valves produced by this company as well as other fine points in construction. There is also an illustrated article describing steam laboratory employing one of the highest pressure water line boilers ever built — 2500 psi. Other material of interest includes data on pressure-sealed-flat glass gauges.

YARNALL-WARING CO., Dept. CP, 125 Mermaid Ave., Philadelphia 18, Pa.

When inquiring specify CP A107 — see information request blank, pgs. 2-3

### Method of Attaching Transformer Cases Ends Strain on Solder Seal

*Completely rustproof case is of particularly rigid construction; transformers pass immersion test*

**Uses** — This method of attaching transformer cases eliminates any strain on the solder seat. Transformers have passed Signal Corps 5 Cycle Immersion Test.

**Description** — The case is steel, completely rustproof, and is of particularly rigid construction due to the method of case construction employed which eliminates the strain on the solder seal. The terminals may be of molded bakelite or glass and soldered sealed to the case. The mounting bolts are welded gas tight. It is also potted with a rubber seal compound. This type of construction is said to eliminate the mechanical cause of transformer failure due to shock from temperature, humidity changes and vibration. Complete details regarding this development will be furnished by the maker on request.



NEW TRANSFORMER MOUNTING

THERMADOR ELECTRICAL MFG. CO., Dept. CP, 5119 South Riverside Drive, Los Angeles, Cal.

When inquiring specify CP A168 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

# Check your knowledge of pH

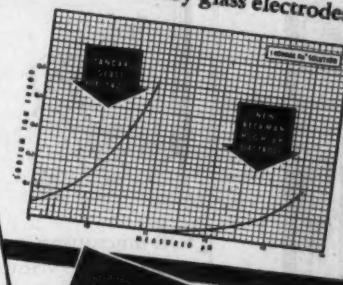
## Do you know the answers to these important pH questions?

**Q.** There is only ONE make of modern pH equipment with which accurate pH measurements can be made in highly alkaline solutions, even in the presence of sodium ions. Do you know what that make is?

**A.** Beckman pH equipment—and only Beckman equipment! Note in chart the accuracy of Beckman Type E Glass Electrode in highly alkaline solutions compared with ordinary glass electrodes!

**Q.** There is only ONE make of pH equipment with which glass electrode pH measurements can be made in boiling hot process solutions. Do you know the name of this equipment?

**A.** Again Beckman—and only Beckman! With Beckman High Temperature Glass Electrodes, continuous pH measurements can be made in solutions as hot as 100°C (212°F). This feature is highly important to consider in the purchase of pH equipment for any purpose. Even though your present operations may not involve hot solutions, you never know when changes or additions to your operations may obsolete equipment not providing this feature. Buy Beckman to begin with and be sure!



There's a Beckman pH instrument for your requirement.



Beckman Automatic pH Indicator

The most advanced pH instrument available for large-scale pH control. Indicates pH completely automatically. Also operates pH recording and control equipment!



Beckman Industrial pH Meter

Combines high accuracy with knockabout ruggedness for portable plant and field use. Gives instant pH readings at the touch of a button. Also continuous indication!



Beckman Laboratory pH Meter

Combines high precision with wide versatility to meet every laboratory and research need.



Free! "What Every Executive Should Know About pH"—a helpful factual guide to modern pH control. Send for your copy.

BECKMAN INSTRUMENTS NATIONAL TECHNICAL LABORATORIES South Pasadena • California

INSTRUMENTS CONTROL MODERN INDUSTRIES

When inquiring specify CP A169 . . . see information request blank, pgs. 2-3

POPULAR **MERIAM**  
WELL TYPE MANOMETER  
INDICATES PRESSURES  
Quickly



FOR measuring gas and air pressures—vacuums and differentials—in the laboratory or in the field, this Meriam Well Type Manometer offers many advantages. It is a quick, direct reading manometer. No adding of distances above and below reference zero (as for U-Type). No adjustments of scale, you read the pressure at once. A handy, sturdy instrument—good for long years of accurate measuring. The tight fitting glass front seals out dust and dirt—crystal clear visibility always. Wide scale (full width of body) behind the Pyrex tube. The popular Table Mounting style, (A-203) shown, is for line pressures up to 250 lbs. per sq. in. in ranges from 30" to 100" (equal to a range of from 15 lbs. to 49.2 lbs. using Mercury). Ask for Catalog C-11 containing description of this and other Meriam instruments.

THE MERIAM INSTRUMENT COMPANY  
10940 Madison Avenue • Cleveland 2, Ohio

**MERIAM**  
Instruments

ESTABLISHED 1911

MANOMETERS AND GAUGES FOR THE ACCURATE MEASUREMENT  
OF PRESSURES, MACHINERY AND PLANTS, OF LIQUIDS AND GASES

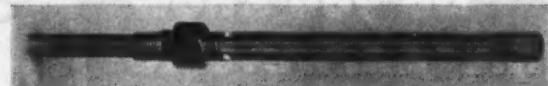
When inquiring specify CP A170 — see information request blank, pgs. 2-3

Page 26

## INSTRUMENTS

### Midget Industrial Thermometers

For installation where temperature indication must be maintained with laboratory accuracy



EASY READING thermometers, weighs 5 oz.

Uses — In distillery, rubber, petroleum, experimental work in electrical industry and many essential applications. Features — Lens-front yellow back tube and scale engraved on glass for easy reading.

Description — Scale ranges from minus 30 to plus 700 F. Straight and angle types, weight 5 and 7 oz. respectively. Straight type 9 in. overall. Folder on request.

H-B INSTRUMENT CO., Dept. CP, 2510 N. Broad St., Philadelphia 32, Pa.

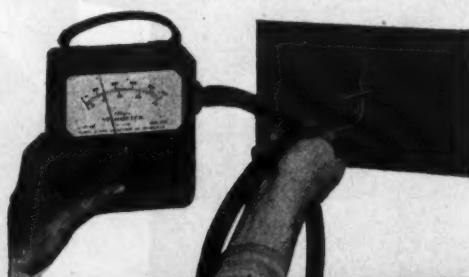
When inquiring specify CP A171 — see information request blank, pgs. 2-3

### Panelboard Reconversion

A sixteen page pamphlet describes a unique method of converting inadequate electric power panelboards to modern style without disturbing box or conduit. Brief case histories are illustrated with "before" and "after" illustrations. Booklet CA-575.

SQUARE D CO., Dept. CP, 606 Rivard St., Detroit 11, Mich.

When inquiring specify CP A172 — see information request blank, pgs. 2-3



### Alnor VELOMETER

#### the direct reading air velocity meter

Air speed in feet per minute is read directly and instantly on the scale of the Alnor Velometer. Anyone can use this simple instrument—there are no calculations, no leveling, no timing, and no conversion tables. This convenient instrument allows quick checking of draft, leaks, velocities at air conditioning outlets, and any other air movement. Quick, accurate air velocity measurements give a valuable check on efficiency of equipment.

The Velometer is made in several standard ranges from 20 fpm to 6000 fpm, and up to 3 inches total pressure. Special ranges available as low as 10 fpm and up to 25000 fpm velocity and 20 inches pressure. Write for bulletin with complete data.

#### ILLINOIS TESTING LABORATORIES, INC.

420 NORTH LA SALLE STREET  
CHICAGO 10, ILLINOIS

When inquiring specify CP A173 — see information request blank, pgs. 2-3

## SEND FOR THIS NEW CATALOG!



Data, specifications and illustrations . . . factual and helpful. . . . about Alberene Stone, the material that outlasts the building.

**ALBERENE STONE CORP. OF VIRGINIA**  
419 4th Avenue, New York

When inquiring specify CP A174 — see information request blank, pgs. 2-3



### ALL ELECTRIC FLOATLESS LIQUID LEVEL CONTROLS

These are the original electric liquid level controls, pioneered by us in 1933. They have no floats — no vacuum tubes — no moving parts in the liquid. They control variations of levels of  $\frac{1}{4}$ " or more, and are not affected by pressures, temperatures, acids or caustics. Relay can be located any distance from the electrode.

#### WRITE FOR CATALOG

CATALOG 943 contains complete technical descriptions of the many types available, together with wiring diagrams for various installations. Get full information on B/W controls. WRITE FOR YOUR COPY TODAY!

**B/W CONTROLLER CORPORATION**  
2212 E. Maple Road, Birmingham, Mich.

FIRST IN THE FLOATLESS CONTROL FIELD

When inquiring specify CP A175 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## INSTRUMENTS

### Utility Scale For Laboratories Total Capacity 3024 Grams

**Uses** — For laboratory use as general utility weigher. **Features** — Extreme sensitivity and high speed with extended tare beam lever adapt it particularly for general use in laboratory. The device is accurate, easy to read, having wide intervals between intervals and large figures. Interchangeable parts and low maintenance costs.

**Description** — Total capacity is 3024 grams. Exact zero is obtained by means of a handy leveling device located at one end of the base and indicator oscillation is regulated by a hydraulic dashpot. This dashpot functions as a shock absorber as well as to bring the indicator to a quick stop. As an indication of its sensitivity, for weighing on the Ratio platter, the chart is graduated to two-tenths gram and is readable to one tenth gram. The figures on the chart are read to one tenth value, and the bottom figures on the beam are used for additional capacity or for taring containers. A specially designed cage is designed for holding live specimens on the Ratio platter. Equipped with a round platter, this scale is also adapted to weighing in the conventional manner. For this purpose the chart is graduated to 2 grams and readable to one gram. When weighing on the round platter, the weight is read directly from the figures on the chart. The figures on the beam, as in using the Ratio platter, provide additional capacity or a means of taring containers.

TOLEDO SCALE CO., Dept. CP, Toledo, Ohio.

When inquiring specify CP A176 — see information request blank, pgs. 2-3

### Portable Electrical Tachometer

**Speeds of any shafts whether centered or uncentered can be determined; direct scale readings up to 50,000 RPM's are possible**



POWER UNIT & INDICATOR

**Uses** — For wide range of speed measuring requirements. This model is for service as a portable testing instrument. Direct scale readings up to 50,000 RPM's are possible. Four rubber tips are provided so that speeds of any type shaft,

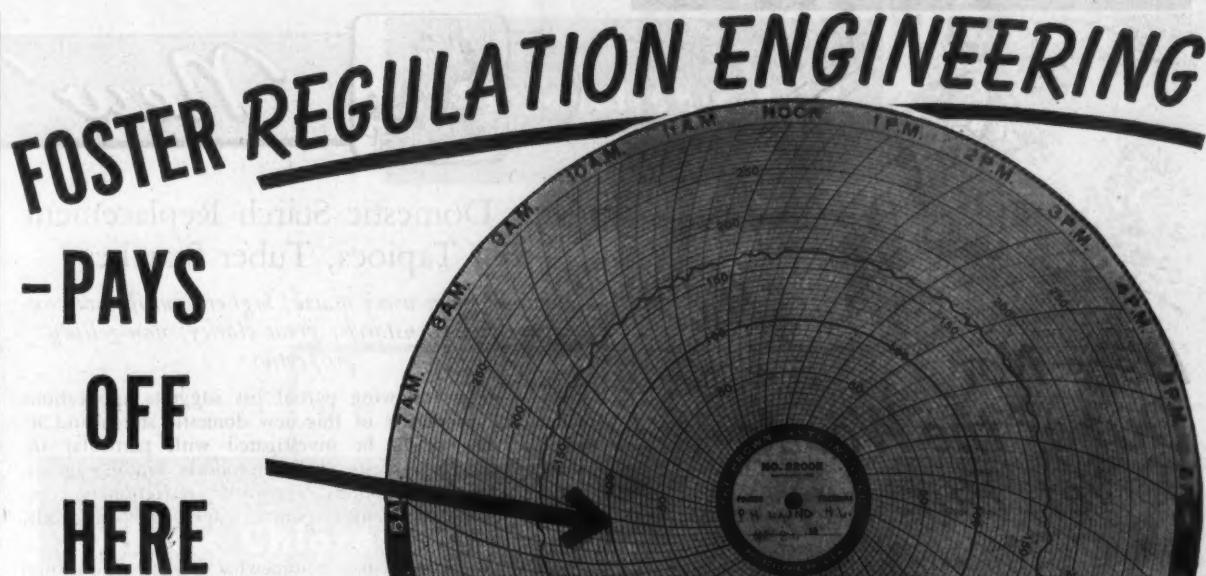
whether centered or uncentered can be determined.

**Description** — The indicating instrument is mounted in a hardwood case with a flexible cord and plug-in jack. The complete unit, power-generator, — meter etc. are all enclosed in a handy carrying case. The readings on the indicating scale are guaranteed within  $\frac{1}{2}$  of 1% of the full scale. The power unit has plastic housing to permit easy hand hold. Special calibrations on the indicator, units of miles per hour — revolutions per minute — feet per minute — frames per second — gallons per hour and pounds per minute and other units of measure can be quickly read. These direct readings from the scale eliminate the necessity of using conversion tables.

R. B. BRIGHAM CO., Dept. CP, 327 16th St., Toledo, Ohio.

When inquiring specify CP A177 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944



### Because Foster Regulation Engineering:

- Starts in the drafting room, but doesn't end there
- Checks quality of materials and workmanship at each stage of production
- Provides competent help in the selection of the proper valve for the job
- Gives assistance on correct installation practice for best results
- Follows through with improvements and refinements resulting from constant study of performance of valves in actual service

That's why Foster is the authority on pressure regulation, and why Foster Regulation Engineering pays off in steady, trouble-free operation.

On the button — day after day, month after month, year after year.

A good book to have at your right hand when regulation problems come up. Ask for Catalog 70.

★ Bring 'em Back Quicker-Buy More War Bonds ★

**FOSTER ENGINEERING**  
Company

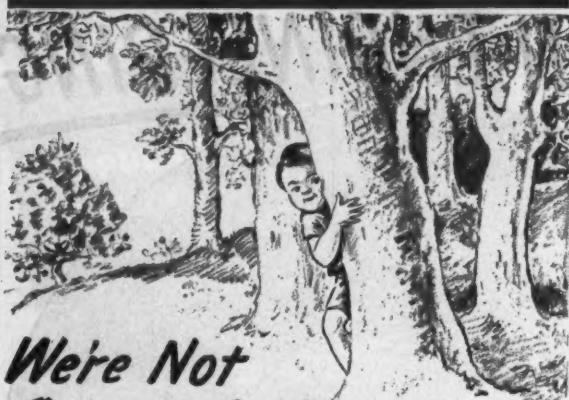
PRESSURE REGULATORS...RELIEF AND BACK PRESSURE VALVES...AUTOMATIC STOP AND CHECK VALVES...ALTITUDE VALVES...DAMPER REGULATORS...FAN ENGINE REGULATORS...PUMP GOVERNORS...TEMPERATURE REGULATORS...LIQUID LEVEL CONTROLLERS...FLOAT AND LEVER BALANCED VALVES...NON-RETURN AND TRIPLE DUTY VALVES...VACUUM REGULATORS OR BREAKERS...SIGHT FLOW BOXES...STRAINERS...SAFETY VALVES...SIRENS

124 MONROE STREET • NEWARK 1, N. J.

9-FE-1

When inquiring specify CP A178 . . . see information request blank, pgs. 2-3

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## We're Not Out of the Woods Yet, But...

The production of Furfural is keeping up with demands and we expect that it will continue to do so.

## Furfural

has been and continues to be an essential war chemical. It may be several months yet before there is a large excess and it will probably remain on allocation until then. In the meantime, however, customers' requests are being taken care of regularly with the same high grade product supplied before and during the war.

If you have been interested in Furfural and become discouraged by your inability to have it allocated now is a good time to resume your work with it.

Furfural is a liquid aldehyde approximately 16% heavier than water. The commercial grade is sold as 99.5% furfural minimum. It is miscible with alcohol, acetone, ether, and most organic solvents with the exception of petroleum hydrocarbons and glycerol. The solubility of Furfural in water is 8.3% at 20° C. It is an excellent solvent for phenolic resins.

Inquiries regarding Furfural and its associated Furan compounds are welcome. Feel free to use our technical service.

The Furans —  
Commercially  
Available

FURFURAL  
FURFURYL ALCOHOL  
TETRAHYDROFURFURYL  
ALCOHOL  
HYDROFURAMIDE

Write for this  
Free Booklet



The Quaker Oats Company  
TECHNICAL DIVISION, 1920 Board of Trade Bldg.  
141 W. Jackson Blvd. Chicago (4) Illinois

FURFURAL - FURFURYL ALCOHOL - HYDROFURAMIDE  
- TETRAHYDROFURFURYL ALCOHOL ...

When inquiring specify CP A179 — see information request blank, pgs. 2-3

Page 28



## New Materials

### New Domestic Starch Replacement For Tapioca, Tuber Starches

Obtained from waxy maize; higher equilibrium content than cornstarch; great clarity; non-gelling properties

**Uses** — The following partial list suggests applications where the properties of this new domestic starch and its modifications might be investigated with particular interest: Adhesives, asbestos, bakery products, binding agents, bluing, boiler compounds, ceramics, confectionery, cosmetics, dyes, insecticides, paints, paper, rubber goods, soaps, textiles.

**Features** — Amioca has a somewhat higher equilibrium moisture content than cornstarch. In this respect it is related more to the tuber starches than to cereal starches. Amioca gelatinizes sharply, starting at 70 degrees C and proceeding over a range of only 8 degrees, resembling the root starches. Unusual clarity an important quality when used in certain paper and textile applications such as sizing or coating where an opaque film would detract from color or glass. Also desirable in food products such as pie fillings, candies. Does not gel with cooling and bodies up only slightly.

**Description** — The skills of several groups contributed to making this product available commercially. It was the part of the Chemists at Iowa Agricultural Experiment Station to see the similarity of the clear, gummy, non-setting cooked pastes of cooked pastes of Amioca to tuber starches such as potato and tapioca flour. Through laboratory tests and commercial trials carried on by American Maize Products Co., National Starch Products, Inc., and Stein-Hall & Co., Inc., it is now shown that Amioca is a satisfactory replacement for tapioca flour and other tuber starches in those uses where the properties of tuber starches make them superior to others. This has been a factor in the rapid development of Amioca because of reduced tapioca import since the beginning of the war. The increased knowledge of starch chemistry has shown that here is a starch different from others, including tapioca. It is expected that Amioca will be competitive in price with high grade tapioca flour after the war, on the basis of results so far experienced with the growing and milling of waxy maize. Amioca granules resemble common corn in size and shape. However, granules of waxy maize are stained reddish brown with iodine and not blue as are granules of common corn. It is also interesting to note that in comparison, waxy maize granules have a very low capacity for absorbing iodine. Amioca's capacity for holding water is manifested in the non-skin forming property



NO MORE DAMAGE FROM CONDENSATION  
OR SWEATING PIPES, TANKS, WALLS, CEILINGS  
AND AIR DUCTS

### NO Drip A SURE CURE

• This sensational plastic cork coating prevents condensation drip from metal, concrete, brick, wood, plaster or composition surfaces. Permanently protects metal against rust and corrosion, thus prolonging life of pipes, tanks, etc. Forms a moisture-proof, insulation type coating impervious to acid and alkali.

Stucco-like finish requires no maintenance. A gallon covers about 30 feet of 1/2" pipe. Dries in 24 hours. Immediate Shipment. Order from your Supply House.

FREE NoDrip Circular about Condensation Drip and its Prevention.

J. W. MORTELL CO.

Technical Coatings Since 1895  
530 BURCH ST., KANKAKEE, ILL.



When inquiring specify CP A180 — see information request blank, pgs. 2-3

NEVILLE

### Chemicals for the Nation's War Program

COUMARONE-INDENE RESINS

MODIFIED COUMARONE RESINS

PLASTICIZING OILS • RUBBER RECLAMING OILS

RUBBER COMPOUNDING MATERIALS

DIBUTYL PHthalate • GUANADINE NITRATE

INSECTICIDES • TAR PAINTS • TOLLAC • NEVOL

HI-FLASH SOLVENTS • CRUDE COAL-TAR SOLVENTS

BENZOL • TOLUOL • XYLOL

WIRE ENAMEL THINNERS

NEUTRAL, CREOSOTE, AND SHINGLE STAIN OILS

THE NEVILLE COMPANY

PITTSBURGH • PA.

When inquiring specify CP A181 — see information request blank, pgs. 2-3

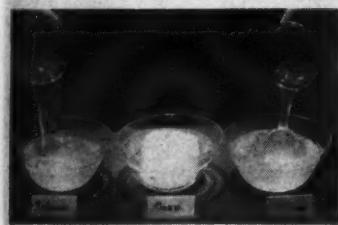
CHEMICAL PREVIEW

## MATERIALS

of cooked pastes of Amioca and modified Amioca products and in the highest moisture retention of Amioca starch films. With twenty parts of water to one part of starch Amioca is shown to have higher viscosities than potato starch. According to current views, starch consists of two types of molecules, one being an unbranched and the other a branched polymer of glucose. The name "amylose" is used to designate the fraction containing the unbranched molecules and the "amylopectin", the fraction containing branched molecules. Amioca is unique in that it contains only "amylopectin" molecules. The characteristics properties of amylopectin are clarity, stability in solution, lack of tendency to gel and adhesiveness while "amylose" tends to gel and retrograde or thicken in solution. In connection with miscellaneous properties it is said that enzyme conversions of Amioca yield products retaining the clarity and non-gelling features of the original starch. Amioca starch is particularly sensitive to liquefaction by enzyme preparations high in liquefying or alpha-amylase component. Of interest is the satisfactory application of



Illustrating the difference in clarity between starches when cooked in 15 parts water and cooled to room temperature.



Illustrating non-gelling character of starches when given same cooking treatment.

Amioca in making of pearls and beads used in tapioca puddings. A booklet on Amioca has been jointly prepared by the technical departments of American Maize Products Co., National Starch Products, Inc., and Stein-Hall & Co., Inc. While current supplies of the starch and its modified products are ample for commercial test runs and limited adaptation by industry, an enlarged plant program is expected to yield substantially greater quantities for 1945. Copies of the booklet may be obtained by addressing any of the three companies named and the assistance of their technical departments is available.

NATIONAL STARCH PRODUCTS, INC., Dept. CP, 270 Madison Ave., New York 16, N. Y.

When inquiring specify CP A182 — see information request blank, pgs. 2-3

### Compound for Painting Over Oily, Greasy Structural Surfaces and Machinery

Bulletin explains how to paint compound over oil saturated surfaces, machinery, etc., to act as an effective sealer. It may be applied with a brush or spray and comes in all colors. In units of 30 gallons or more.

ROCK-TRED CORP., Dept. CP, 605 W. Washington St., Chicago 6, Ill.

When inquiring specify CP A183 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## Chlorosulfonic Acid

OR

## Sulfuric Chlorohydrin

## CISO<sub>2</sub>OH

NO MATTER HOW YOU WRITE IT,  
**WE CAN SHIP IT!**

If you want prompt delivery of Chlorosulfonic Acid (Sulfuric Chlorohydrin), contact the nearest Monsanto office. We can ship at once and you can have delivery as promptly as America's efficient transportation system can span the distance between our plant and your own.

Monsanto Chlorosulfonic Acid, key chemical of the sulfa drugs and also used in the manufacture of intermediates, organic chemicals, synthetic drugs, lacquers, plastics, wetting agents, dyestuffs,

textiles, and petroleum products, is the result of planned research and laboratory-controlled manufacturing. You can depend upon Monsanto quality.

For further information and technical counsel, please get in touch with the Monsanto office nearest you or write: MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Birmingham, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

**MONSANTO**  
**CHEMICALS**  
SERVING INDUSTRY...WHICH SERVES MANKIND

When inquiring specify CP A184 . . . see information request blank, pgs. 2-3

Page 29



## MATERIALS

ported approximately 50% availability compared to ferric sulphate. There still remains a great deal of confusion over the reliability of the methods, and until this point is cleared up, too much significance cannot be attached to percentage availability obtained by feeding tests. Several prominent nutritionists have suggested fortifying on the basis of total iron. (See Shol's Mineral Metabolism pp. 221). Literature reference: United States Dispensatory in discussion under ferric pyrophosphate, soluble, mentions that it is believed that when introducing iron in this form, it is ingested as sodium iron pyrophosphate.

VICTOR CHEMICAL WORKS, Dept. CP, 141 West Jackson Blvd., Chicago 4, Ill.

When inquiring specify CP A189 — see information request blank, pgs. 2-3

### Methyldiethanolamine Valuable in Nitrogen Bearing Compounds

Particularly interesting to pharmaceutical field; also to dyestuff, textile chemical producers

**Uses** — Suggested as a raw material in the manufacture of textile agents and dyestuffs, insecticide intermediates, and as emulsifying agents. For example, it is a convenient starting material in the production of synthetic analgesics such as "Demarol" which has sedative, analgesic and anti-spasmodic effects without causing depression of the central nervous system. Nitrogenous ethers are useful as assistants in mercerizing, wetting, dyeing and softening textiles. It shows some evidence of selective action in the absorption of acidic gases.

**Description** — Methyldiethanolamine is another of the amines now produced by this organization. This liquid has a characteristic amine-like odor and is completely miscible in water and benzene. It is a light colored liquid. Being a tertiary amine with two highly active ethanol groups, the compound has several points of attack for the introduction of other groups and hence should be valuable for the preparation of a wide variety of compounds. On dehydration and ring closure it forms methyl morpholine. Technical information sheet is available on request.

CARBIDE & CARBON CHEMICALS CORP., Dept. CP, 30 E. 42nd St., New York, N. Y.

When inquiring specify CP A190 — see information request blank, pgs. 2-3

### pH Buffer Tablets Covering the Regions 2.0 to 12.0 pH, Steps 0.20

Packed in hermetically sealed vials with full instruction indicated on label

**Uses** — These buffer tablets are now offered as a comprehensive line of exactly compounded solid buffers, covering the region 2.0 to 12.0 pH in steps of 0.20 pH.

**Description** — From fifty different formulas the pH value the problem demands can be selected so that the resulting buffer solution will be correct to within 0.20 pH. A certified buffer solution is prepared by dissolving one certified tablet in 100 ml of warm, distilled water. The tablets are packed 12 per glass vial, protected by a hermetic wax inner seal and a bakelite screw cap. Each vial is labeled with full instructions and the pH clearly indicated.

BURRELL TECHNICAL SUPPLY CO., Dept. CP, 1936 5th Ave., Pittsburgh 19, Pa.

When inquiring specify CP A191 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944



# PFIZER

*the  
World's Largest  
Producer of  
Penicillin*



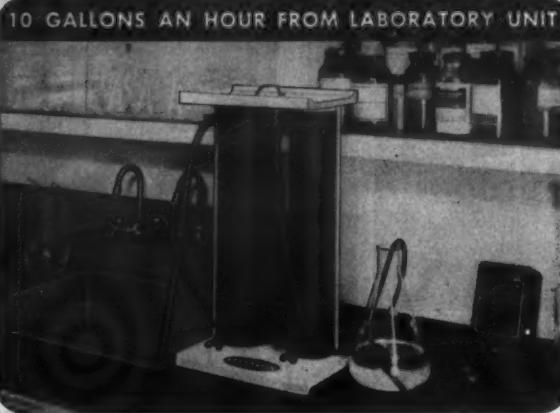
*Chemicals for Those Who Serve Man's Well-Being*

**CHAS. PFIZER & CO., INC.**

MANUFACTURING CHEMISTS • ESTABLISHED 1849

81 MAIDEN LANE, NEW YORK 7 444 WEST GRAND AVE., CHICAGO 10





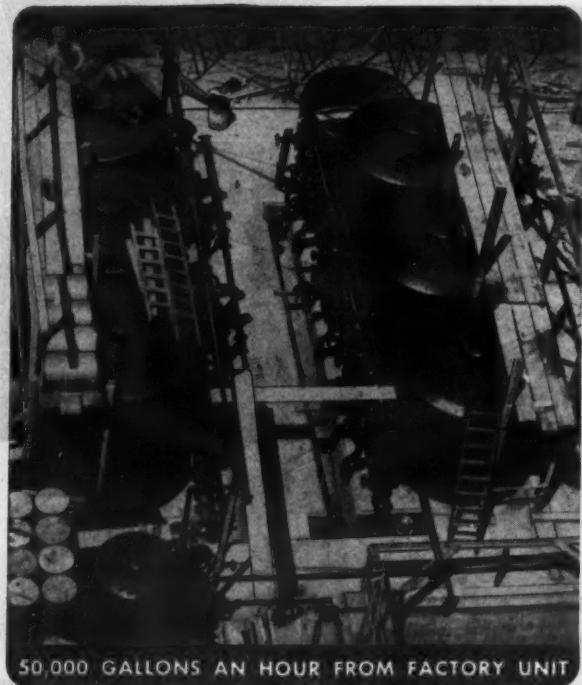
#### ILLCO-WAY DE-IONIZING UNITS

#### 10,000 GALLONS OF DE-IONIZED WATER (replacing distilled water) FOR LESS THAN \$1!

A constant and unfailing supply of pure water . . . replacing distilled water at a fraction of the cost! . . . is obtained from ILLCO-WAY De-ionizing units . . . in operation for over four years, meeting the most exacting standards in leading war industries:—synthetic rubber, aircraft engine, pharmaceutical, butadiene, distilleries, laboratories, etc. If you use pure water in any of your manufacturing processes or products . . . send for literature today!

#### ILLINOIS WATER TREATMENT CO.

Water Treatment Engineers  
849-9 CEDAR STREET, ROCKFORD, ILL.



When inquiring specify CP A192 — see information request blank, pgs. 2-3

Page 32

#### MATERIALS

##### Cerium — Its Properties and Applications

Pocket size folder summaries data on Cerium, defining, describing it and tracing the pioneer work of this principal producer in America of this metal and its sister elements Lanthanum, Praseodymium, Neodymium, Illinium and Samarium from their ores. It is stated that co-ordinated research on the chemical and metallurgical possibilities of Cerium, together with its sister elements indicates that makers of new alloys, compounds and products may consider the unique properties of these elements in current and future developments. Cerium belongs to the group of elements known as "Rare Earth Metals." From the monazite sands it is possible to produce an alloy of the rare metals which for simplicity's sake is called "Cerium Standard Alloy." Production of this Cerium standard alloy from ores in commercial lots has been developed into a controlled routine process assuring adequate supply. Heretofore, the pyrophoric nature of the rare earth metals has made alloying with the more common metals difficult. Therefore a series of master alloys are offered which can be delivered in various composition ranges and forms to simplifying problems, especially where it is intended to have only small amounts of the Cerium metals in the final composition. The use of the Master alloy permits the simple addition of small amounts without undue loss of the Cerium metal. Some of the applications include, magnesium casting, stainless steel and heat resistant alloys, bearing metals, refractory metals and compounds and tool steels. Folder sent on request.

CERIUM METALS CORP., Dept. CP, 522 Fifth Ave., New York 18, N. Y.

When inquiring specify CP A193 — see information request blank, pgs. 2-3

#### PRECISION Micro-Muffle FURNACE

with 9 point multiple control  
and special pre-heating chamber

Complete  
with pyrometer

\$157.50



An exceptional furnace for laboratory work. Operates on 110 volt AC or DC. Any temperature from 1600°F. to 2500°F. can be controlled within 5°. Temperatures from 100°F. to 300°F. are attained in special auxiliary chamber. Equipped with large, automatically compensated pyrometer and long life, platinum wired muffle. Overall dimensions: 8" wide, 12" high and 16" deep.

Request Information  
on complete line of  
Huppert Furnaces.

**K. H. HUPPERT CO.**  
6822 COTTAGE GROVE AVENUE  
CHICAGO 37, ILLINOIS

When inquiring specify CP A194 — see information request blank, pgs. 2-3



TYGON paint will lengthen the usable life of any equipment subject to the action of corrosive fumes, condensates or spillage.

Such items as blowers, dust collectors, pumps, chemical storage equipment, pickling and plating tanks — all will last longer and require less frequent repairs when protected with TYGON paint.

Laboratory tests prove that TYGON paint possesses the greatest general resistance to corrosive attack of any paint made.

Write today for Bulletin 1610  
PROCESS EQUIPMENT DIVISION  
THE UNITED STATES STONWARE COMPANY  
AKRON, OHIO

When inquiring specify CP A195 — see information request blank, pgs. 2-3



**Everything in ELECTRONICS  
and RADIO from this One Source**

All you make is one contact! All you place is one order . . . for everything! Allied carries today's largest and most complete stocks under one roof. Procurement of "hard-to-get" items is facilitated by our close contact with leading manufacturers. Save time—call ALLIED First . . . for one item or a hundred!

Write, wire or phone Haymarket 6800

**ALLIED RADIO CORP.**

833 W. Jackson, Dept. 17-J-4, Chicago 7, Ill.,



**FREE  
Complete  
Up-to-date  
BUYING GUIDE**

Over 10,000 Items . . . such as:

Tubes  
Relays  
Coils

Condensers  
Transformers  
Photo Cells

Resistors  
Rheostats  
Rectifiers

Switches  
Sockets  
Receivers

Public Address  
Test Equipment  
Speakers

**ALLIED RADIO**

When inquiring specify CP A196 — see information request blank, pgs. 2-3

**CHEMICAL PREVIEW**



**Brother, when  
you Seal a Joint  
with X-PANDO  
you know it  
won't leak!**



If you want to know why X-Pando Pipe Joint Compound is standard in American Industry and Shipbuilding — why the U. S. Army, Navy, Coast Guard, Maritime Commission and Army Air Corps use it — why the pipe shop men who take no chances insist on X-Pando, here are the reasons.

**It expands as it sets**

**THE ONE FORMULA — FOR ALL USES!**

X-Pando corrects imperfections in threads and flanged faces. It's economical, goes 6 times further. Holds anything carried in metal pipe except certain heavy acids — expands and contracts with pipe movement — yet joints may be easily taken apart — smoothes flange faces — X-Pando withstands deflection, sharp temperature changes — vibration and pressures — better than litharge and glycerine for all uses. More than a pipe joint compound. It is an all purpose industrial sealing agent.

*"If you want to end leaks permanently specify X-Pando — the best — costs less"*

Distributors Everywhere

**X-PANDO CORPORATION**

43-15 36th St., L. I. City, N. Y. STillwell 4-7180

When inquiring specify CP A201 — see information request blank, pgs. 2-3

Page 34

## MATERIALS

### New Anti-Oxidant for Foodstuffs Derived from Creosote Bush

*Nor - di - hydro - guaiacetic Acid now reserved for military requirements to be available for commercial applications in near future*

**Uses** — Aiding in the preservation of the sweet flavor of foods containing either animal or vegetable fats. **Description** — This anti-oxidant — Nor - di - hydro - guaiacetic Acid — to be designated as N.D.G.A. comes from Larrea Divaricata or creosote bush which is a type of low, scrubby vegetation growing wild in semi-arid regions of the western states. After being extracted from the weed and refined it has a white crystalline appearance similar to that of granulated sugar. There appear to be many applications where N.D.G.A. will be beneficial. Approved by the U. S. Department of Agriculture as non-toxic, and approved by the Department's Bureau of Animal Industry for use in lard producers of foods and other products are obtaining beneficial results superior to other known naturally known anti-oxidants. N.D.G.A. was discovered, developed and tested at the University of Minnesota where intensive study of plants used by American Indians has been under way for some years. The George Hormel Foundation was conducting research in anti-oxidants for food stuffs at the time of the discovery. The Two research staffs collaborate. The assignment of working out commercial processes of manufacture was assigned to organizations specializing in extraction of vegetable

## The FIRST "Competitive" Stage of POST-WAR BUSINESS

— is developing now in the Scientific Laboratories of American Industry. Be sure your Laboratories are equipped and manned to gain and hold the place your products deserve when Peace Comes.

The experience gained by Keweenaw Engineers in equipping America's leading Industrial Laboratories is available to you without cost. Write us your requirements.



C. G. CAMPBELL, President  
5011 S. Center St., Adrian, Mich.  
Representatives in Principal Cities

When inquiring specify CP A203 — see information request blank, pgs. 2-3

## "Anets" LABORATORY CABINETS



### All Atmospheric Conditions

Send for Your Free Copy Now Describing These and Other Applications:

- ★ MOISTURE ABSORPTION CONTROL
- ★ UNIFORM PROCESSING AND CURING
- ★ HEAT AND MOISTURE EVAPORATION
- ★ FAST PRODUCTION, OVEN DRYING
- ★ CHEM. RESEARCH • BACTERIA CULTURES
- ★ GRADUATED COOLING FOR UNIFORMITY
- ★ PRECISION CHEMICAL DRYING
- ★ FABRIC, PLASTIC AND WOOD CURING

### Any Size up to Large Insulated Rooms

If you have other war production problems where automatic temperature and humidity control can step-up delivery, prevent waste and insure uniform quality — then call on Anetsberger Bros. Write telling us the size of box or room, temperature and humidity, room desired.

**Anetsberger Bros.** 3322 Elston Avenue, Chicago, Illinois

When inquiring specify CP A204 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

**DIERT**  
**Moisture**  
**CONTROL**

Will save you money  
It is Quick and Accurate

For plant and laboratory use in the chemical, ceramic, food, foundry, paper, pulp, rubber, salt, sugar, textile and tobacco industries.

• The Dietert Moisture Teller determines moisture content accurately and rapidly by forcing electrically heated air through the test sample. Cost of operation is very low.

ANY-ONE CAN OPERATE IT

Send today for full information and prices.

CONTROL EQUIPMENT

SAFETY TIME

Harry W. Dietert Co.  
9330 ROSELAWN DETROIT 4, MICH.

When inquiring specify CP A202 — see information request blank, pgs. 2-3

## MATERIALS

substances and their application in usable form in food-stuffs. Product will be available for commercial applications when production volume over and above military requirements permit.

WM. J. STANGE CO., Dept. CP, 2536 W. Monroe St.,  
Chicago 12, Ill.

When inquiring specify CP A205 — see information request blank, pgs. 2-3

## Anti-Corrosion Films For Steel

*Product diluted with acid free mineral oil provides protection against extreme conditions and during prolonged storage*

**Uses — As anti-corrosion films for steel.**

**Description** — Product known as "Sublan," is diluted with equal amounts of acid free mineral oil. Applied to highly polished steel surfaces. Tested in 90-95 percent relative humidity "wet saturated" with condensate forming continuously on the surface. The film thickness was that amount which adhered on cold dipping the panel and draining. After 1200 hours there was no evidence of rust formation. Polished panels protected with "Sublan" mineral oil mixture were stored, wrapped in grade A paper for 10 months and showed no rusting. The coating passed the tests against hydrobromic acid and salt water immersion and humidity conducted in accordance with Government Specifications AXS 674. Also the film suppresses latent finger prints on the polished steel surfaces. The films are readily removed from the surface by cold solvent wash or dip. Additional information on request.

GLYCO PRODUCTS CO., Dept. CP, 26 Court St.,  
Brooklyn 2, N. Y.

When inquiring specify CP A206 — see information request blank, pgs. 2-3.

## Data on Adhesive Formulae

A booklet that will be of value to those using adhesives or coating materials, impregnators, spray-on insulators and sound-deadening compounds is entitled, "3M Adhesive Data." It lists various formulae as made by this organization, and shows viscosity, bonding range, application etc. Available on request.

**MINNESOTA MINING & MFG. CO.**, Dept. CP, 411 Piquette Ave., Detroit 2, Mich.

When inquiring specify CP A207 — see information request blank, pgs. 2-3

## Plasticizer and Resin Used in Fireproof, Weatherproof Coatings for Fabrics

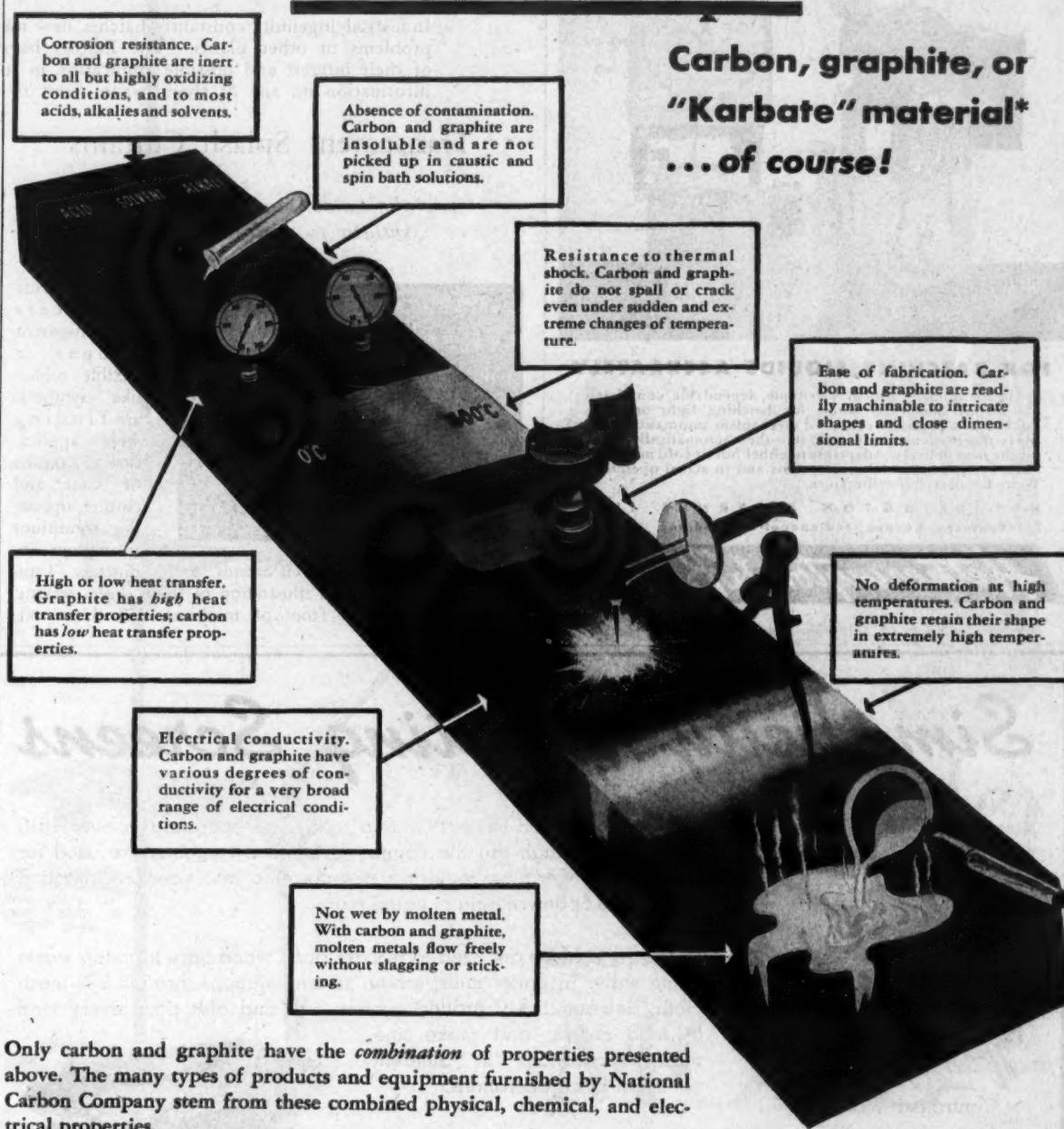
A new technical booklet describes the unusual properties of Clorafin 42, plasticizer, and Clorafin 70, resin, used in the production of fireproof, waterproof, and weatherproof coatings for fabrics. Clorafin 42, a light amber, viscous, nonflammable plasticizer, is emulsified very easily. Recent tests show Clorafin 42 to be a good plasticizer for some of the vinyl resins. Clorafin 70 is a pale, straw-colored, hard, brittle resin, with even greater flame extinguishing characteristics. Present uses in addition to the formulation of flameproof coatings and waterproof coatings, include the formulation of flameproof paints and flameproof adhesives. It is believed that Clorafin 70 will be useful in many applications where flameproofing qualities, hardness, and stability are important because of its very good stability and compatibility with plasticizers and other resins.

HERCULES POWDER CO., Dept. CP, Wilmington, Del.

When inquiring specify CP A308 — see information request blank, pgs. 2-3

# BAR OF *What?*

## **Carbon, graphite, or "Karbate" material\* ...of course!**



\*Carbon or graphite made impervious to seepage

## NATIONAL CARBON COMPANY, INC.

*Unit of Union Carbide and Carbon Corporation*

105

**General Offices:** 30 East 42nd Street, New York 17, N. Y.  
**Division Sales Offices:** Atlanta, Chicago, Dallas, Kansas City,  
New York, Pittsburgh, San Francisco

The word "Karbate" is a registered trade-mark of  
National Carbon Company, Inc.

—When inquiring specify CP A209 . . . see information request blank, pgs. 2-3



ducing surface hydrolysis (the reconversion of the surface composition back toward cellulose) of the molded plastic, the effects of exposure to certain organic solvents are largely overcome, and cellulose plastic articles may be immunized against the action of solvents such as are encountered in the Army's new insect repellents. Contact with some solvent plasticizers causes cellulose ester plastics to become tacky, to swell, to distort; and the more active solvents, such as acetone or acetic acid will finally dissolve the base material upon continued contact.

Surface hydrolysis is obtained by dipping the cellulose ester plastic in a solution containing an active hydrolyzing agent, such as sodium hydroxide, and a softening or penetrating agent, such as methanol. The hydrolyzed layer produced should be approximately .002 to .003 ins. After a thorough rinsing in water, the hydrolyzed samples are dried, preferably in a 150° F. oven. This form of solvent resistance makes possible cleansing operations molded from cellulose ester plastics which have not heretofore been considered practical. Surface hydrolysis does not give immunization against continued exposure to very active solvents, such as acetone and the Cellosolves.

The physical properties of the dipped plastics are apparently unchanged by treatment. Tests for flow temperature, elongation, tensile strength, moisture absorption, and leaching were run on dipped and undipped samples. There was no difference between the two lots, which would indicate that the toughness of the plastic is unimpaired by surface hydrolysis. (Tenite I and Tenite II are such cellulose ester plastics. Detailed information concerning this process and results of experiments are available from Tennessee Eastman Corp., Kingsport, Tenn.).

## Sensitive Detector Meets High Temperature, Vibrating Problems

For service 900 F up through and above couple range and as low as 650 F in some cases



TEMPERATURE DETECTOR

The illustration shows detector (Rayotube) installed in furnace detecting temperature which pyrometer records and controls. The usefulness of this detector as an alternate to thermocouples

is well shown by the applications in which it is even preferred. Such instances include cases where temperature is too high for couples or so high that the couples don't last or need excessive protection and are sluggish, temperatures where furnace gases are corrosive to couples; where there is severe vibration, where the temperature involved is of objects in motion and temperature of surface of an object rather than of a furnace gas. In a plant making forgings thermocouples broke because of the vibration of the forging hammers, and to overcome this the Rayotubes were installed. The detector in this case is entirely outside the furnace "looking" in at a closed end of a target tube which is at full temperature. (Rayotubes are made by Leeds & Northrup, Philadelphia, Pa.).



THE HYDROMATIC  
Fluid Ram — multi-  
stroke lift — ca-  
pacity 3500 to  
8000 pounds.

THE RED ARROW  
Capacity to 5000  
pounds — side lift  
improved hydraulic  
check.



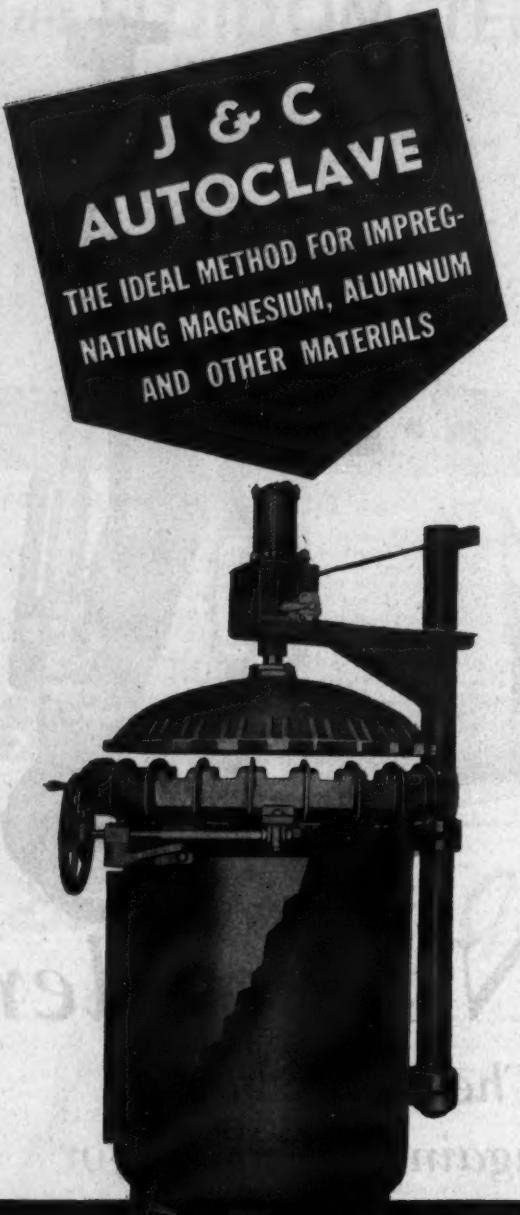
When inquiring specify CP A213 . . . see information request blank, pgs. 2-3

No wonder  
They come back  
again and again for  
**MORE—**

Again and again the greatest industries of America re-order HydroLectrics. They KNOW, thru experience, that these are the *only* trucks that stand the gaff . . . don't break down . . . give utterly dependable service under all conditions . . . are safer . . . operate easier . . . cost less to run . . . and turn in a record of performance no other motorized lift truck equipment can match.

Designed and built by W. C. and W. R. Stuebing of Lift Trucks, Inc., whose products were famous for performance and quality "as far back" as 1910.

**LIFT TRUCKS, INCORPORATED**  
**CINCINNATI, OHIO**



If you have a problem of densifying magnesium, aluminum, wood or fibrous materials, it will pay you to get the facts about the J & C Autoclave. This ingenious, impregnating system, designed and perfected for one of the country's largest chemical firms is equipped for either steam or electrical heating, and has proven its efficiency. Write for complete information.

JACKSON & CHURCH COMPANY, SAGINAW, MICHIGAN

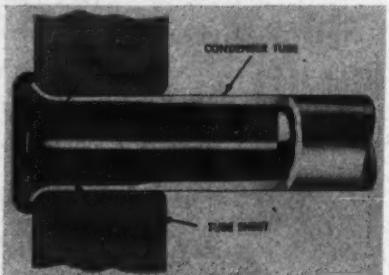
When inquiring specify CP A214 — see information request blank, pgs. 2-3

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## IDEAS

### Protecting Condenser Tube Ends

Molded protectors of Bakelite material fit inside inlet ends



PROTECTOR cemented in place

by temperature to 275 F. They are resistant to air impingement or condenser circulating water. They fit inside the inlet end of the tubes as illustrated, are securely cemented in place and provide a bellmouth Venture entrance for the water. Tests indicate that these protectors aid in prolonging tube life and preventing "outrages." Available to fit tubes of the following sizes:  $\frac{5}{8}$  in., 16 and 18 gauge;  $\frac{3}{4}$  in., 16 and 18 gauge;  $\frac{7}{8}$  in., and 1 in., 18 gauge. (John Crane Packing Co., 1821 Cuyler Ave., Chicago 13, Ill.)

Protection against the destructive effects of air erosion and sand abrasion for condenser tube inlet ends is provided by cylindrical sections made of special wear-resistant hard Bakelite material, unaffected

## A FOOL-PROOF RATE-OF-FLOW METER

The introduction of a new line of Rotameters by the Cochrane Corporation is important news for industrial firms concerned with flow measurement. For the Series-100 Rotameter is not just another Rotameter. It is a better and more trustworthy instrument, combining greater accuracy, ruggedness, simplicity and effectiveness with moderate cost.

### SOME EXCLUSIVE FEATURES ARE—

1. SPRING-LOADED CONSTANT-TENSION GUIDE ROD.
2. SPRING FLOAT STOPS.
3. HIGH PRESSURE STUFFING BOXES.
4. POSITIVE EXTERNAL ADJUSTMENT OF STUFFING BOXES.
5. WHITE-BACKED METERING TUBE.
6. REMOVABLE CALIBRATION SCALE.

Write for a copy of Publication R-100

COCHRANE CORPORATION  
3147 N. 17th St., Philadelphia 32, Pa.

## COCHRANE-ROTA METERS INC. ROTA METERS

When inquiring specify CP A216 — see information request blank, pgs. 2-3



### LET METERS REDUCE THIS FIGURE

Empire meters in industry are vital control mediums over the movement of all piped fluids. Periodic meter readings tell "where", "when" and "how much". Empire's check the efficiency of liquid consuming, circulating or producing equipment. They keep a perpetual inventory of liquid stores. They provide accurate cost data. Investigate metering the Empire way and save!

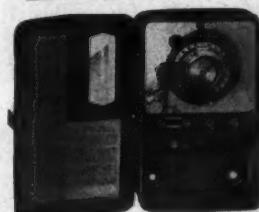


PITTSBURGH EQUITABLE METER CO.  
NATIONAL METER DIVISION  
400 N. Lexington Ave. Pittsburgh 8, Pa.

*Empire* METERS

When inquiring specify CP A215 — see information request blank, pgs. 2-3

## AMERICA'S "TOPS" IN TIME SWITCH PERFORMANCE



... an accurate, durable, self-lubricating time switch for controlling stokers, oil burners, blowers, pumps, valves, air conditioning, etc. . . . for only \$13.00 list.

**JUST TWO EXPOSED GEARS.** All others constantly lubricated because they operate in a sealed oil bath.

**DUST PROOF.** Because of the sealed-in features, dust has no effect upon the operation.

**SLOW SPEED MOTOR.** The first and only low priced Time Switch to be timed and operated by slow speed (450 R.P.M.) industrial type self-starting synchronous motors.

**SELECTION OF SWITCHES.** Switches available: single pole single throw, double pole single throw or single pole double throw.

Send for complete engineering bulletin. Paragon manufactures a wide range of industrial timers, time delay relays, panel boards and other electrical equipment.

**PARAGON ELECTRIC COMPANY**  
33 W. VAN BUREN STREET  
CHICAGO 3, ILLINOIS

**Paragon** Chicago  
BUILDERS OF ELECTRICAL EQUIPMENT  
SINCE 1903

When inquiring specify CP A217 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## IDEAS

### Ultra-Violet Lamps In Ampoule Filling Room

One of many applications in plants and offices for sterilization of atmospheres

An ampoule filling room is equipped with three ultra-violet sterilizing lamps. One is placed in the air intake and sterilizes the air as it enters the room. Two are suspended from the ceiling with rays directed upward. Air entering the room through the air intake passes over baffles so that there are imperceptible air currents in the room at all times. The solutions filled into ampoules include a large variety of glandular, vitamin and chemotherapeutic preparations. Repeated bacteriological surveys have indicated gratifying results. (Hanovia Chemical & Mfg. Co., Chestnut St. and N.J. RR. Ave., Newark, N.J.).

### Plastic Foams to 30 Times Bulk of Original Mixture in 10 Minutes

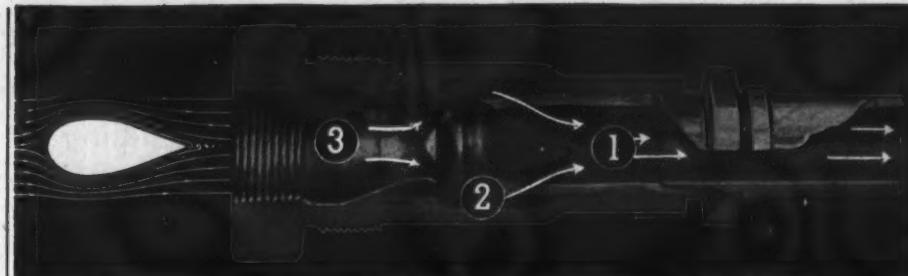
Many practical applications in post-war period, such as insulation indicated



WEIGHING BLOCK OF FOAM PLASTIC

particularly its ability to expand to thirty times the original mixture in a few minutes. Its present uses are secret but many highly practical applications in post-war period are indicated, especially where insulation is required. An outstanding characteristic of this new development is that the material is self-raising and self-curing. In short, the mixture which resembles molasses will begin to foam or expand within two to five minutes after the mixing stops and cures without the application of heat or any other element. It just grows all by itself. What little heat is needed is generated by the mixture itself. This type of foam plastic weighs less than two pounds per cubic foot and is particularly good for insulation. Another type of greater mechanical strength but weighing seven to eight pounds per cubic foot has also been developed. This will also have many peacetime uses it is believed. The illustration shown here emphasizes the light weight of this material in proportion to its maximum expanded size. The block on the scale measures 13 x 9 1/2 x 2 1/2 inches and yet it weighs only 350 grams. (This is a development of General Electric Laboratories, Schenectady, N.Y.)

For complete information regarding products described in this issue a handy request slip is provided between pages 2 and 3. Check the items that interest you, fill in name and address and send it to publishers. Information will come to you promptly.



## PEAK FLOW NEED BE No Problem ... AND WHY!

### CASH STANDARD Streamlined TYPE 1000 PRESSURE REDUCING VALVES



- Extra large capacity
- Tight closing characteristics
- Close delivery pressure control
- Wide range of adjustment

#### CASH STANDARD

#### CONTROLS... VALVES

A. W. CASH COMPANY  
DECATUR, ILLINOIS

1. Straight Line Flow:  
Steam, water, air, oil, etc. — flow through this valve in a straight line — nothing is in the path of the flow to cause turbulence — therefore, peak flow is never a problem.

2. Inner valve is streamlined — no back eddies to hinder flow (see the streamlined form above) — valuable when you want all possible fluid to go through the valve to meet peak demand.

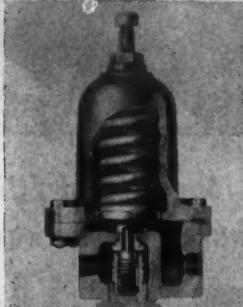
3. Turbulence eliminated by venturi approach to the valve seat. This eliminates turbulence — it means better flow. The inlet pressure is confined to a small cylindrical chamber, the same being advantageous for high pressures.

Write for bulletin "1000" that fully explains the cost-saving benefits that begin with the installation and last for years.

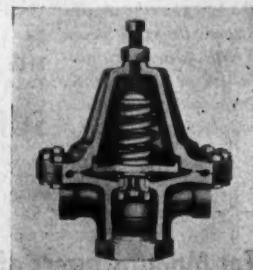
In giving serious consideration to the possibilities of even smoother operation in your plant, find out how this objective can easily be accomplished by installation of the "1000" valve. For example, there are no complicated parts to get out of order — no small parts or passages to

clog up — no close fits. You will get much longer, lower cost service and your attention costs will be down to the absolute minimum. Day after day you will experience smooth operation, accurate regulation, elimination of failures and spoilage.

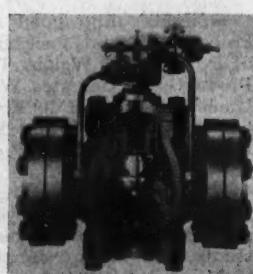
OTHER VALVES  
from the  
CASH STANDARD  
LINE



High Pressure Reducing Valve  
Type H-P: extra heavy for use with initial pressures up to 5000 lbs.; and for reduced pressures up to 650 lbs. Good for most fluids. Sizes: 1/2" to 2"; bronze body; nitralloy trim. Get Bulletin 931.

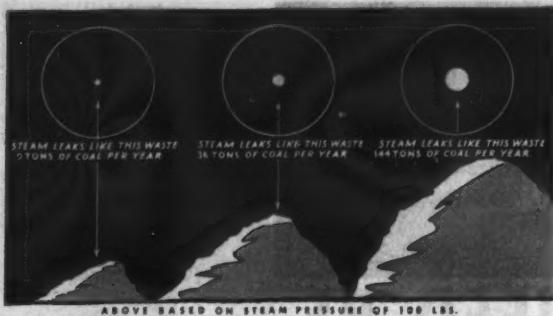


Type 8871 Pressure Regulator for dirty liquids (like Bunker C fuel oil). Inner valve is bolted to diaphragm for positive movement. Sizes 1/2" to 10". Bodies: iron, bronze, or steel. Seat ring and inner valve: stainless steel. Bulletin 972.



Cash Standard Type 10 Pressure Regulating Valve, pilot operated. (Pilot operating fluid discharges to outlet pipe; not wasted). Sizes: 2" to 12". Highest pressures: inlet 600 lbs.; reduced 250 lbs. Iron, bronze, or steel bodies; standard trims. For water, air, non-corrosive gases and oils. Get interesting Bulletin 966.





## Speaking of FUEL CONSERVATION have you checked your traps lately?



Photograph shows Super-Silvertop Steam Traps piped straight-in-line or as an elbow. Inspected without removing from the line.

• The National Fuel Efficiency Section of the Bureau of Mines asks us to conserve fuel to win the war. The above chart shows how leaks waste fuel . . . Old obsolete steam traps are a source of leaks.

Right now inspect your traps. If you need new traps, install fuel-saving ANDERSON SUPER-SILVERTOPS. Send for the book, "How to Choose a Steam Trap," giving complete information.

THE V. D. ANDERSON COMPANY  
1954 W. 96th St. • Cleveland 2, Ohio

**SUPER-SILVERTOP STEAM TRAPS**

When inquiring specify CP A219 — see information request blank, pgs. 2-3

## For Manufacturers of Light or Fluffy Products

### St. Regis 100 L-S

### AUTOMATIC VALVE BAG FILLING MACHINE

Minimizes Entrapped Air Problem . . . Speeds Packaging of Product . . . Weighs The Product . . . Operates With Unusual Ease . . . Fills From 60 to 90 Bags (100 lb.) Per Hour . . . Packs in Units From 25 to 100 Lbs.

If you are now using Multi-wall Paper Bags, or if your product is baggable in these sturdy, heavy duty shipping sacks, your inquiries are cordially invited. We will be pleased to examine your product and tell you if 100 L-S will handle it efficiently. Send coupon for folder.



ST. REGIS 100 L-S  
SCREW TYPE PACKER  
In addition to Screw Type, St. Regis Valve Pack Systems include Bolt, Impeller and Gravity Type Packers designed for packaging a wide range of commodities.

ST. REGIS PAPER CO., 230 Park Avenue, New York 17, N. Y.  
Send illustrated folder on L-S 100 Filling Machine

Is 100 L-S suitable for packing weight per cubic foot Spec. gravity

COMPANY

INDIVIDUAL

ADDRESS

[In Canada: Bates Valve Bag Company, Ltd., Montreal, Que.]

When inquiring specify CP A220 — see information request blank, pgs. 2-3

Page 40

## IDEAS

### Fork Truck Has Easily Attached Hoop Unit for Drum Handling

In combination with special short forks permits operator to pick-up and move drums without getting off truck



ATTACHMENTS for speedy drum handling

speeds and simplifies the work of operators in transporting drums in and out of cars and storage or in many other required handling operations. When the job is completed

### DAVIS LIQUID LEVEL CONTROLS with Dia-Ball packless transmission unit



The Davis Dia-Ball is an improved packless transmission unit for Liquid Level Controllers and Control Valves.

• REPLACES conventional outboard ball bearing packing box.

• SAVES time and maintenance nuisance for busy en-

gineers. No leaky shaft or stem packing with which to contend; no packing box nuts that need be taken up.

• PROTECTS against danger of inflammable or volatile liquids leaking and causing fire or explosion.

• IMPROVES control operation throughout straightlined power transmission, minimum of friction, and increased sensitivity. For pressures up to 300 p.s.i. and temperatures up to 300° F.

• AVAILABLE on Davis Liquid Level Controllers, Lever Operated and Solenoid valves.



No. 161D Packless Float Box and  
No. 65B Packless Control Valve.

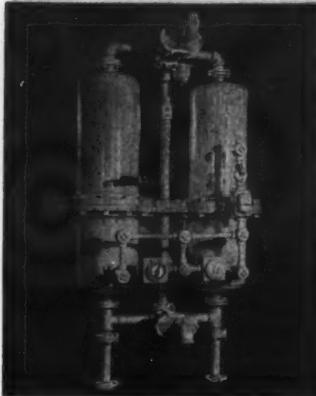
For complete details write for literature.

### DAVIS REGULATOR COMPANY

2562 S. Washtenaw Avenue

Chicago, Illinois

When inquiring specify CP A221 — see information request blank, pgs. 2-3



### COMPRESSED AIR DRIED TO BELOW ZERO DEWPOINTS

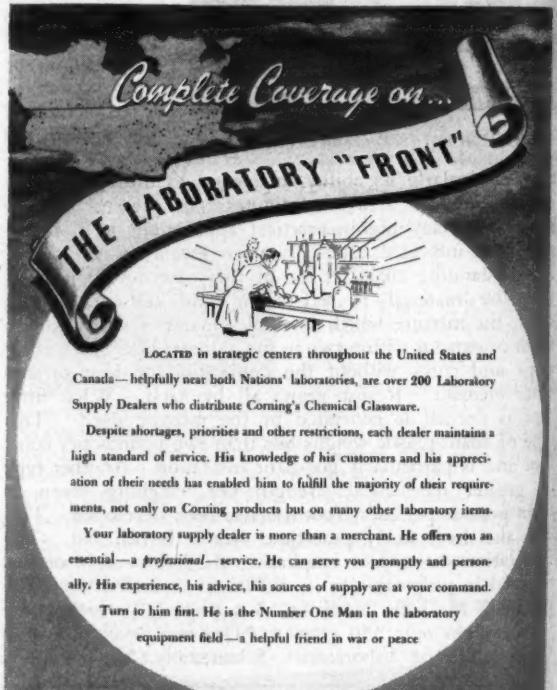
- For instrument lines
- For process work
- For inspection and assembly departments



Kemp Adsorptive Dryers are the standard in modern industrial applications. For Bulletin T25C write The C. M. Kemp Mfg. Co., 405 East Oliver Street, Baltimore 2, Maryland.

### KEMP of BALTIMORE

When inquiring specify CP A222 — see information request blank, pgs. 2-3



LOCATED in strategic centers throughout the United States and Canada — helpfully near both Nations' laboratories, are over 200 Laboratory Supply Dealers who distribute Corning's Chemical Glassware.

Despite shortages, priorities and other restrictions, each dealer maintains a high standard of service. His knowledge of his customers and his appreciation of their needs has enabled him to fulfill the majority of their requirements, not only on Corning products but on many other laboratory items.

Your laboratory supply dealer is more than a merchant. He offers you an essential — a professional — service. He can serve you promptly and personally. His experience, his advice, his sources of supply are at your command.

Turn to him first. He is the Number One Man in the laboratory equipment field — a helpful friend in war or peace.



When inquiring specify CP A223 — see information request blank, pgs. 2-3

### CHEMICAL PREVIEW

## IDEAS

the truck may be utilized for more ordinary service as the special forks and the handling loop are easily removed, regular forks replaced. The truck is then ready to serve in lifting and moving high stacking skid and pallet loads.

(Yale & Towne Mfg. Co., Philadelphia 24, Pa.)

### Fibre Board Pail Seals Liquid Tight

Taper sided, steel bound, nest closely, 45 lb. capacity



45 LB. FIBRE PAIL

constructed. It provides many advantages in making it easier to handle packing operations, preparing products for shipment. The pails nest for utmost savings in space in shipment and storage. One design feature is particularly valuable when pails are used for frozen foods. An entire room full can be frozen at one time as they stack with complete air space around each pail. A special, fast acting sealing tool is available which makes it easy to obtain liquid tight seal. The pail is the product of the John Strange Pail Co., Menasha, Wis.

### Rotary Action Heavy Duty Pumps For Tar, Oils, Semi-Pastes, Asphalt; Various Drive Connections

Cycloidal rotary pumps are described in a four page, two-color folder with numerous illustrations showing driving arrangements, including direct-coupled electric motors, gasoline and steam engines, in addition to such standard arrangements as flat belt or v-belt and gear reducers. A cross-sectional view shows three-lobed impellers which are used in both the types of pumps included in the selection of ranges offered. The first is suitable at handling the heavier and more viscous liquids at heads up to 150 feet while the other renders similar service at heads up to 120 feet, being used for larger capacities. Materials suitably handled by these pumps are tar, oil, grease, asphalt, slack wax, semi-pastes, spent grain and many others. Due to the rotary principle employed in these pumps, a number of moving parts are eliminated and there are no contact points between the impellers themselves or the impellers and the case. Pumps can be supplied in corrosion resisting metals to meet special requirements. The bulletin also features a spread of actual installations in various types of processing plants. Copies on request — No. 60-B 11.

ROOTS-CONNERSVILLE BLOWER CORP., Dept. CP, Connersville, Ind.

When inquiring specify CP A224 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

# DURA PLASTIC

## a general purpose packing



WRITE FOR ILLUSTRATED BULLETIN NO. 8-77

### AN OUTSTANDING DEVELOPMENT

### IN PLASTIC SEMI-METALLIC PACKING

Two years of extensive engineering were spent in producing this general purpose packing for stuffing box service on pumps, valves, mixers and the like. DURA PLASTIC provides improved sealing for gasoline . . . water . . . air . . . steam . . . oils . . . and certain chemicals. Effective on temperatures up to 450 F.

#### DURA PLASTIC FEATURES:

- ★ Economical
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When inquiring specify CP A225 . . . see information request blank, pgs. 2-3

Free — Send for It Today!

MEET ALLIS-CHALMERS  
GREAT NEW

## V-Belt Team!



NEW BELT LINEUP: 1 — Sheet-Resisting Super-7.  
2 — Oil-Resisting Super-7 . . . 3 — Oil-Proof Super-7 . . .  
4 — Static-Resisting Super-7 . . . 5 — Super-7 Steel. Dies on  
new "Magic-Grip" Shears and four speed-changing devices.

You'll be sure to order the right V-belt, the correct speed changing device for your drives after reading Allis-Chalmers' interesting new illustrated booklet describing the world's most complete line of V-belt drive equipment. Write for a copy of B6331 now!

ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN

A 1765 1

When inquiring specify CP A226 — see information request blank, pgs. 2-3



## NEW LITERATURE \*

The following literature has been issued recently by manufacturers of the products discussed and is available to chemical process manufacturing executives on request. Address requests to the publishers by using handy request form, pages 2-3, or write to the manufacturers direct.

### Machines Form, Fill, Seal Packages of Heat Sealing Paper or Foil

Six-page illustrated bulletin describes the Chemical and food wrapping applications of wrapping machines that use Cellophane, Pliofilm or other approved heat sealing paper or foil. The machine forms, fills and seals the package taking the printed or unprinted web from the roll at speeds of from 50 to 100 packages per minute, depending on size of package, kind of web and nature of material. In some cases, an attachment is placed on the machine to punch a hole in the end of each package; and where desired dies are furnished for impressing the initials of the processor on the end seal of each package. The feed of the material may be counting, measuring pockets, augur or centrifugal feed, and in some cases, even hand feed. The bulletin also describes a recent development. With the "Fin-Seal" attachment the heat sealing surfaces of two rolls of film are brought face to face, filled, sealed around all four edges and cut to make individual packages providing moisture proof protection to a high degree. Bulletin 4943 on request.

STOKES & SMITH CO., Dept. CP, 4943 Summerville Ave.,

When inquiring specify CP A228 — see information request blank, pgs. 2-3

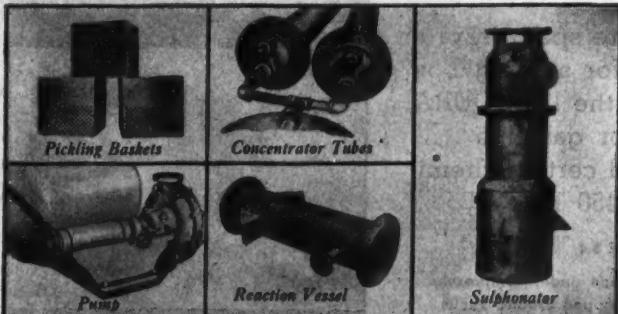
### Heavy Duty Heaters

Design and construction features and performance data on a complete line of heavy duty heaters are presented in a thirty-six page catalog. The basic construction of these new heaters comprises one inch steel pipe and rugged cast iron headers. To these have been added tapered spiral steel fins, suitably spaced and metallically bonded to the primary pipe surface, three eighths inch steel steam distributing pipes for uniform steam circulation, cylindrical cast iron headers for strength and a standard sheet metal casing for ease of installation. This provides great heat transfer per square foot comparable to lighter copper heaters. Weight is less than pipe coil heaters and resistance to air flow is much less than generally encountered with non-ferrous heaters of this type. The heaters maintain uniform steam circulation and have excellent non-freeze characteristics. The various sections in text and illustrations give highly detailed information on headers, distributing pipes, etc. as well as range of sizes and installation suggestions. There is a complete series of tables to aid in selection as well as piping diagrams. Catalog Number 462 on request.

B. F. STURTEVANT CO., Dept. CP, Hyde Park, Boston, Mass.

When inquiring specify CP A229 — see information request blank, pgs. 2-3

## FABRICATED UNITS OF PROCESSING EQUIPMENT made of HASTELLOY Corrosion-Resistant Alloys



• The HASTELLOY alloys that have proved so successful in handling hydrochloric and sulfuric acids, wet chlorine, and other corrosive agents are now available in completely fabricated units.

The booklet, "HASTELLOY Corrosion-Resistant Alloys" contains more information on these alloys. Write for it. If you wish, we will send our price list as well. Address your request to any Haynes Stellite Company office.

BUY WAR BONDS AND STAMPS

**HASTELLOY**  
TRADE-MARK

HAYNES STELLITE COMPANY

Unit of Union Carbide and Carbon Corporation

New York, N.Y.



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Chicago—Cleveland—Detroit—Houston—Los Angeles—San Francisco—Tulsa

HIGH-STRENGTH NICKEL-BASE ALLOYS FOR CORROSION RESISTANCE

The word "Hastelloy" is a registered trade-mark of Haynes Stellite Company.

When inquiring specify CP A227 . . . see information request blank, pgs. 2-3

Page 42

Why this Leading Manufacturer of Abrasives  
Uses **DESPATCH** Ovens  
for Laboratory Work



Despatch Cross-Flow System  
GUARANTEES Accurate Heating!

High volume fan  
forces heated  
air uniformly  
thru chamber.  
Penetrates  
every inch of  
shelf space.  
Recirculation  
provides exception-  
al heat effi-  
ciency, fast recovery, wide flexibility.

- ASSURES DEPENDABLE DATA
- ALLOWS MORE TESTS PER DAY
- OFFERS WIDEST UTILITY

**DESPATCH**  
OVEN COMPANY MINNEAPOLIS

SEE YOUR  
LOCAL DEALER!  
WRITE for Bulletin  
No. 105 TODAY!  
Fully illustrated.

When inquiring specify CP A230 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## NEW LITERATURE

### Pneumatic Materials Handling By Six Basic Systems Employing Water Jet Air Ejectors

The principles of proper pneumatic materials handling are given unusually interesting and advanced treatment in a colorful, illustrated technical bulletin that features a series of blueprint type diagrams emphasizing the advantages of the "windswept" principle that is embodied in the equipment described. The detailed design of the principle provides that the material forms an angle of repose, so that the air is permitted to sweep over and around the material and pick up just the amount it is capable of carrying. The relative merits of steel, cast iron and alloy iron pipe are discussed in some detail, and the advantages of the latter type used in these installation are enumerated. Three types of vacuum producers are discussed: positive displacement exhauster, steam jet air ejector — multiple and single and water jet air ejector, the latter being the type employed in this instance. The matter of the disposal of the material in systems using each type of vacuum producer is given detailed consideration. Six basic systems are illustrated in the drawings: (1) Discharging wet material direct to proximate fill site, (2) Discharging wet material directly to remote fill site, (3) Discharging dry material from cyclone collector to transport vehicle (water not reclaimed), (4) Discharging dry material from cyclone storage tank to transport vehicle (water reclaimed), (5) Discharging commercially dry material to transport vehicle (water not reclaimed), (6) Discharging Commercially dry material to transport vehicle (water reclaimed). Some one of these systems or combinations can be worked out to handle most dry materials handling requirements. An added feature of these systems is an installation of a portable crusher at the feeding end of the systems if necessary. The crusher feeds the broken material into the pneumatic system by means of a "windswept" feeder.

ALLEN-SHERMAN-HOFF CO., Dept. CP, 1431 Locust, St., Philadelphia 2, Pa.

When inquiring specify CP A281 — see information request blank, pgs. 2-3

### Positive Dust Collection By Filtration

A practical general discussion of dust and dust control problems together with detailed description of dust collecting equipment in a range of models to meet specific requirements is presented in a two-color, illustrated catalog. Especially useful data includes a chart for determining proper pipe diameters giving air volume in cu. ft. per min. handled through pipes at various velocities. The importance of positive filtration is emphasized and the features and advantages of the dust filter employed in this equipment are explained. The filter case is divided by the dust wall into a dust chamber and a clean air chamber. The dust laden air is blown into the filter or drawn through it by the exhaust fan. A baffle plate opposite the dust inlet diffuses the dust over the entire dust chamber, protects the cloth bags, and permits the heavier dust particles to drop by gravity. Filter bags of special cloth are inserted in slots in the dust wall. The air passes from the outside of the bags in the dust chamber through the cloth to the inside of the bags and out of the open air of the bags into the clean air chamber. The dust collects on the outside of the bags. A hopper under the chamber receives the collected dust. The latter half of the catalog is devoted to tables giving complete specifications of filters, dust chambers together with drawings of interest in determining requirements and making installations. Copies on request. Catalog 98.

THE W. W. SLY MFG. CO., Dept. CP, 4700 Train Ave., Cleveland, Ohio.

When inquiring specify CP A282 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

# BROWN FINTUBE SECTIONAL HEAT EXCHANGERS



with this new  
**FLANGED HEAD  
SEAL AND  
FLANGED UNION**

Patents Applied For

### Offer These *exclusive* Outstanding Advantages

- 1 Flanged construction throughout, — eliminating screw fittings and screw unions, — and avoiding torsional strains on any member.
- 2 Gasketed seals eliminate ground joints, and all maintenance troubles common to ground joint construction.
- 3 Gaskets are renewable, fully retained, and joints may be *inspected easily* before sealing.
- 4 Seals may be made or broken with a small standard wrench, — from the front — permitting close side by side installation in minimum space.

- 5 This new flanged construction permits interior of fintube to be inspected and cleaned without disturbing shell side seal.
- 6 Sturdy rugged design, employing forged steel flanges with stud bolting. All joints have been tested to several times normal operating pressures.

These exchangers are designed and built to give you a maximum of long, efficient, satisfactory service, — and to insure easy installation, easy inspection and easy maintenance by your workmen . . . Let us quote on your requirements.

THE **BROWN FINTUBE** CO.  
119 FILBERT STREET • ELYRIA, OHIO

MANUFACTURERS OF INTEGRALLY BONDED FINTUBES AND FINTUBE HEAT EXCHANGERS

When inquiring specify CP A233 . . . see information request blank, pgs. 2-3



## ROTA - SIGHT FLOW ALARM

When inquiring specify CP A234 — see information request blank, pgs. 2-3

The float in the Rota-Sight Alarm moves up or down in direct proportion to flow rate changes. At any point you may choose in the flow range it will operate an electrical switch, to light an electric lamp, to sound an alarm, or to stop or start electrical equipment. Positive . . . accurate . . . dependable. Cast in all metals from  $\frac{1}{4}$ " size and up. Available also without the alarm attachment as a flow rate indicator. Send for bulletin 92-A which gives the interesting details.

**FISCHER & PORTER CO.**

7109 COUNTY LINE ROAD, HATBORO, PA.



## Easier, More-Exact pH REGULATION

For any process requiring close regulation of acidity or alkalinity, Foxboro pH Recorders offer exceptional ease and accuracy in finding and holding the correct pH point. A perfect combination of standard Foxboro Potentiometer Recorders and Foxboro Beckman Amplifiers and electrodes furnishes continuous, exact records of pH. The glass-electrode method eliminates need for color-matching. Supplied with flow-type or immersion-type electrodes. Foxboro pH Recording Controllers also available for many uses.

The Foxboro Company, 134 Neponset Ave., Foxboro, Mass., U.S.A. Branches in principal cities.

**FOXBORO**

pH  
RECORDERS

When inquiring specify CP A235 — see information request blank, pgs. 2-3

## NEW LITERATURE

### Revolving Shell, Rotary Vacuum Dryers, Kilns, Coolers, Flakers, Blenders and Calciners

The technique of drying is given highly detailed treatment in a sixty page illustrated catalog describing equipment and plants designed for that purpose. Direct heat, indirect heat and direct-indirect heat revolving shell dryers are each discussed from the viewpoint of operating characteristics and applications for which they are best suited. Drawings accompanying the discussion of each type serve to emphasize the important points of design. Additional sections are concerned with rotary vacuum dryers, calciners, coolers, kilns, flakers, blenders which are given equally thorough presentation. Catalog Number 1958 on request.

BLAW-KNOX CO., Dept. CP, Box 1198, Pittsburgh, Pa.

When inquiring specify CP A236 — see information request blank, pgs. 2-3

### Portable Safety Roller Skid Conveyor

Portable roller conveyor built standard for railway car height or built to height to be specified is described in four page folder. It eases the handling of heavy boxes and cartons. Strong frame, mounted on two wheels and swivel caster and has toggle jack floor anchor. Rollers lock when load is on down movement providing a safety, friction skid but revert to immediate free operation the instant load travel is upward.

JERVIS B. WEBB CO., Dept. CP, 8951 Alpine Ave., Detroit 4, Mich.

When inquiring specify CP A237 — see information request blank, pgs. 2-3

### Control Liquid Temperatures Within $1\frac{1}{2}$ ° F. plus or minus



**STERLING  
THERMOTROL**

FOR LIQUIDS AND PROCESSING (No Priority Needed)

AVOID FUEL WASTE, improve production and processing efficiency NOW, with this Sterling THERMOTROL Liquid and Process Control. Self-contained, self-operated, the Thermotrol maintains accurate temperatures on hot water storage tanks, heat exchangers, process cookers, sterilizers — wherever temperatures depend on carefully modulated flow of steam, water, or gas. Available for pressures up to 125 lbs., temperature ranges to 300° F. Available without priority under L-79 Amendment.

WRITE FOR Bulletin  
No. 402 showing  
wide range of ap-  
plications.

**Manufacturers of Heating Pumps . . . Temperature  
Controls . . . Heating Specialties**

When inquiring specify CP A238 — see information request blank, pgs. 2-3

## More Power to You!

Greater earnings for you too — because the new Cleveland Speedaire Worm Gear Unit gives you More Horsepower for Your Dollar!

Speedaire offers as much as twice the capacity of standard worm units of equal frame size, when operated at usual motor speeds.

Heat generated during operation is literally scoured off the deeply-finned outer surfaces of the oil reservoir by a high-velocity air stream.

The new Speedaire Catalog is ready. We'll send it gladly. The Cleveland Worm & Gear Company, 3257 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication  
In Canada: PEACOCK BROTHERS LIMITED



When inquiring specify CP A239 — see information request blank, pgs. 2-3

**Re-usable  
Permocharts  
Increase  
Efficiency  
of Recording  
Instruments**



\* Permocharts — flexible and waterproof instrument-recording charts made of washable plastic — make industrial control more accurate, more efficient, more simple, and less costly.

In the long run, Permocharts cost less than paper charts (about one-fifth as much). Centers are reinforced with plastic washers to prevent deterioration from re-use. There are sizes available for any recording instrument which uses circular charts.

Re-usable Permocharts are available in white and three I-EZ colors — green, ivory, and blue; they are guaranteed for two years continuous service.

**PRICE RANGES** (F. O. B. Sewickley, Pennsylvania)

Up to 8" — \$1.50 each; up to 10" — \$2.00 each; up to 12" — \$2.50 each. Ink — 2 oz. 70c; 8 oz. \$2.00

Minimum Order — 3 Charts

Write for Literature and Quantity Discounts



When inquiring specify CP A240 — see information request blank, pgs. 2-3



From experience—engineers have come to know and depend on Ohmite Wire-Wound Rheostats and Resistors for fixed, or variable control of current and voltage in operating or test instruments. Used in the most advanced electronic and electrical devices. Widest range of types and sizes.

Write on company letterhead for Industrial Catalog and Engineering Manual No. 40.

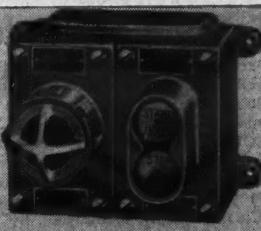
**OHMITE MANUFACTURING COMPANY**  
4917 WEST FLOURNOY STREET, CHICAGO 44, ILLINOIS

*Be Right with OHMITE*  
RHEOSTATS • RESISTORS • TAP SWITCHES

When inquiring specify CP A241 — see information request blank, pgs. 2-3



Explosion-proof switch



Explosion-proof pilot light and push button station

Somewhere in your plant, there are several spots where a combination of explosion-proof, vapor-proof or dust-proof switches, signal lights and push-button stations would simplify your problems.

That is where standardized, precision-made, and interchangeable Russell & Stoll Company fixtures and fittings can serve you well.

Recent developments include some of the largest explosion-proof and power panels ever assembled.

Since 1902



**RUSSELL & STOLL COMPANY**  
EXPLOSION-PROOF, WATER-TIGHT AND FIRE-PROOF  
TACTICS, BUMPS, DOLMOTORS, SWITCHES AND FIXTURES  
125 BARCLAY STREET NEW YORK 7, N.Y.

When inquiring specify CP A242 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## NEW LITERATURE

### Centralized Lubrication

How centralized lubrication systems increase the production output of machinery through improved operation and savings in time and labor involved in performing lubricating operations is explained in illustrated bulletin (number 25). It contains sixteen pages and presents briefly and graphically the theory of mechanical lubrication. It opens with a study of machinery lubrication problems and of the economies that can be achieved in system delivering measured amounts of lubricant to bearings in various locations. A page size picture featuring a close-up an installation is of interest in this connection as the various important points in the system are identified by numbers. A series of cut-away drawings show how the measuring valve in the "Dualine" system works and how this action is achieved without recourse to springs, check valves or small ports. The construction and operation of both manual and automatic pumping units, which provide the high pressure source of lubricant supply, are similarly treated. A selection of twenty-four application photographs suggesting the most advantageous methods of installation complete the booklet.

**THE FARVAL CORP.**, Dept. CP, 3259 E. 80th St., Cleveland 4, Ohio.

When inquiring specify CP A243  
— see information request blank, pgs. 2-3

### Tractors, Trailers, Lift and Fork Trucks

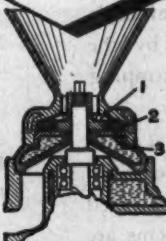
Forty-page four color catalog describes lift, fork, trucks, tractors and trailers and platform trucks. In addition to complete specifications of all equipment there are brief treatises on the following: the application and advantages of tractors and trailers and "fork-truck" trackless train system. In addition to numerous illustrations in color there are many drawings and diagrams emphasizing features of operation and design. The selection offered includes a bantam gas tractor with no load speeds up to 8 mph, dump body trailer units, trailer accessories, and a swivel booster a handy unit for handling jobs that are too long to be accommodated on one trailer unit. Each assembly is easily attached onto a single castor steer trailer by inserting posts into the side rack sockets. Long loads are easily supported by these bolster assemblies and snaked through narrow spaces and around corners by simple guiding of rear trailer. Catalog Number 7-11 is available on request.

**THE MERCURY MFG. CO.**, Dept. CP,  
4044 S. Halsted St., Chicago 9, Ill.

When inquiring specify CP A244  
— see information request blank, pgs. 2-3

Perfect your postwar products in this  
**LABORATORY COLLOID MILL**

**IT FEATURES**  
**BARTLETT-SNOW'S**  
**EXCLUSIVE**  
**Triple**  
**PROCESSING**  
**Action**



- 1) FIRST PROCESSING ACTION—Mixing in the Upper Chamber by Impeller Vanes on Top of the Rapidly Revolving Rotor.
- 2) SECOND PROCESSING ACTION—Between the Housing and the Periphery of the Rotor.
- 3) THIRD PROCESSING ACTION—Driven Against Centrifugal Force Between the Rotor and Stator into Smaller and Smaller Areas.

Here's a Colloid Mill that meets every laboratory requirement. It is easy to clean, and can be used for processing different materials, or different batches of similar materials, without delay, or contamination. It is adapted for use with V-groove, labyrinth, plain, or various special types of rotors and stators to meet different requirements . . . and the changes from one rotor and stator, to another, can be made easily and quickly . . . And . . . of special importance, this laboratory mill has been patterned so painstakingly after the larger sizes of Bartlett-Snow Triple Action Mills, that any effect or result produced in the laboratory can immediately be duplicated in production quantities . . . But send for catalog No. 87 . . . It gives complete details,—contains much engineering data of interest to research, development, and production men.

**THE C.O. BARTLETT-SNOW CO.**  
6241 HARVARD AVENUE • CLEVELAND 5, OHIO  
ENGINEERING AND SALES REPRESENTATIVES IN THE PRINCIPAL CITIES

COLLOID MILLS • DRYERS, COOLERS, KILNS, CALCINERS AND PRESSURE VESSELS • CONVEYING AND ELEVATING EQUIPMENT OF ALL KINDS • BOILER PLANT COAL HANDLING, STORAGE AND RECLAIMING SYSTEMS • CRUSHERS, PULVERIZERS, SCREENS AND FEEDERS • POWER TRANSMISSION EQUIPMENT

When inquiring specify CP A245 — see information request blank, pgs. 2-3

Page 45

EVERYONE RESPONSIBLE FOR  
EFFICIENT LUBRICATION OF  
MACHINERY SHOULD HAVE THESE  
**FREE BULLETINS**



Lubrication, from a central source, of all bearings of a machine or a group of machines is easily and thoroughly accomplished by the Lincoln Centro-Matic System without stopping the machines.

Lincoln Centro-Matic Systems consist of a number of Centro-Matic Injectors—one for each bearing—and a hand-operated, or a power-operated Centro-Matic Lubricant Pump. The systems are easy to install and will increase your plant efficiency, not only today, but for years to come.

**Save** Man Hours • Machine Hours  
Bearings • Power • and reduce accidents.

INSTALL

**LINCOLN**  
CENTRO-MATIC  
LUBRICATING SYSTEMS

WRITE FOR LITERATURE

Customer: Please mail me any copies of Centro-Matic Bulletins.

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Title: \_\_\_\_\_

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City: \_\_\_\_\_

State: \_\_\_\_\_

CP

144015

**LINCOLN**

Pioneer Builders of Engineered Lubricating Equipment

When inquiring specify CP A240 — see information request blank, pgs. 2-3

Page 46

## NEW LITERATURE

### Anti-friction Idler for Belt Conveyors

Sixteen page illustrated book (No. 1915) describes anti-friction idler for belt conveyors and gives detailed information on the various sizes available in the several types. These types include troughed carrying-run idlers, flat roll carrying return idlers troughed self-aligning idlers and flat roll carrying and return idlers. Dimensions and weights are given. Features of the idler include: (1) A positive grease seal to keep the grease in and the dirt out of anti-friction bearings. (2) Troughing rolls accurately aligned in a sturdy streamlined steel frame assembled in jigs to assure correct bracket spacing and roll interchangeability. (3) Roll shafts locked in frame, yet quickly and easily removed. (4) Interlocking nuts to keep roll supporting brackets from spreading. (5) Equipped with pipe extensions for safe center-roll lubrication from one end of troughing idler unit. (6) All rolls in each troughing idler are of the same length and interchangeable. Copy available on request.

LINK BELT CO., Dept. CP, 307 N. Mich. Ave., Chicago, Ill.

When inquiring specify CP A247 — see information request blank, pgs. 2-3

### Data on Forged Steel Flanges and ASA Tables on Wartime Pressure Ratings

Major manufacturer of forged steel flanges has issued new catalog containing complete descriptions and specifications of the line, such as practical engineering data, conversion tables and performance data of constant interest to piping engineers. It contains ASA tables on Wartime Pressure Ratings.

LADISH DROP FORGE CO., Dept. CP, Cudahy, Wis.

When inquiring specify CP A248 — see information request blank, pgs. 2-3

IS YOUR PROBLEM  
ONE OF MAINTAINING  
PRODUCTION WITH LESS

**Manpower?**



Proper use of mechanized material handling equipment can help offset manpower losses. Most plants find that a Baker Truck—with a single operator, will release a number of men for other duties. Faster handling of materials speeds production in other ways, too. If you have a manpower problem, actual case histories reported in the New Baker Catalog may offer a solution.

Write for your copy of the  
new Baker catalog

Any executive concerned with  
material handling will find this  
book a valuable source of information.  
Write for your copy today.

BAKER INDUSTRIAL TRUCK DIVISION of the Baker Radium Co.  
2163 WEST 25th STREET • • CLEVELAND, OHIO  
In Canada—Railway and Power Engineering Corporation, Ltd.

**Baker** INDUSTRIAL TRUCKS

When inquiring specify CP A250 — see information request blank, pgs. 2-3

## Sacking Scales for Small Packages

Packaging in small containers from bulk at a profit requires more than filling a carton or bag. Such an operation calls for scales. EX-ACT WEIGHT Scales. If 50,000 packages are  $\frac{1}{4}$  oz. overweight per package, that is 12,500 oz. lost or 78 pounds. Translate this into dollars by simply multiplying by the cost of your product to you. It pays to weigh accurately by using fraction-ounce equipment. The EX-ACT WEIGHT Scale (illustrated) does this job accurately, fast, is trouble-free in operation, insurance against packaging loss.



Write for complete details.

INDUSTRIAL PRECISION  
**Exact Weight Scales**

THE EXACT WEIGHT SCALE COMPANY

31 W. FIFTH AVE.  
DEPT. E, 1104 BAY ST.

COLUMBUS 8, OHIO  
TORONTO, CANADA

When inquiring specify CP A251 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

# GLASS

## Makes an Excellent Filter Medium for Strongly Acid and Hot Solutions

To the process plant operator, chemical glass needs no introduction as a material highly resistant to most chemicals, hot or cold. Chemical glass, spun and woven into a filter medium, offers the same acid and temperature resistance.

F-M Glass Filter Medium is also durable in a mechanical way, being carefully spun into strong threads and woven into tough cloth. We can offer several different weaves, ranging from coarse to fine, from heavy to medium weight. And we can offer trained technical advice, if desired, and laboratory tests for determining the best grade of Glass Medium for your particular problem.

In writing please give as complete a picture as possible of your problem.

### FILTER MEDIA CORP.

Irvington-on-Hudson, N. Y.

Chicago

Salt Lake City

9-FM-1

When inquiring specify CP A252 — see information request blank, pgs. 2-3

*Don't let Valve Difficulties Handcuff your Operations*

#### INSTALL

HILLS-McCANN  
SAUNDERS PATENT  
DIAPHRAGM VALVES

#### on Your Vital Pipe Lines

For 12 years, Hills-McCanna have been called upon by leading American manufacturers to whip valve difficulties. This rich experience in applying Saunders Patent Valves to hundreds of different services is at your command.

With their simple construction, streamlined flow, absence of pockets or ports, elimination of packing—reworking and regreasing, these valves offer users a new standard of performance, free from corrosion troubles and maintenance.

Write for Engineering Data or Catalog V-44.

**HILLS-McCANN CO.**

2370 NELSON STREET, CHICAGO, ILL  
PROPORTIONING PUMPS • AIR & WATER VALVES • CHEMICAL VALVES  
LIQUID & AIR MEASURING STATION • DOWMETERS • AIR DRYERS

When inquiring specify CP A253 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

### NEW LITERATURE

#### Special Purpose Hogs

Four page folder gives essential data on a number of special purpose hogs for extract plant, rubber, cork, paper, sawdust and chemical applications. One piece cylinder assures perfect balance and safety and the one piece frame and oversize bearing construction provide rigidity, perfect bearing alignment and increased strength. The unit that has proved particularly adaptable to chemical plants is built with gravity feed or combined power and gravity feed. The power feed enables large billets to feed with the creation of the minimum of heat. The gravity feed is used to handle irregular pieces. Other features include discharge at the bottom, flat faced cylinder, sealed bearings which prevent oil from contaminating the product, and where necessary the machine can be furnished so that materials will come in contact only with stainless steel surfaces. This hog is being used for reducing plastics to uniform granules to facilitate accurate measuring for molding machines. Complete specifications on v-cylinder (10,000 - 60,000 pound capacities), power feed chippers (4,000, 30,000 and 60,000 pound models) screen type (2,000 - 15,500 pounds) and bottom discharge (750 - 4,000 pounds) are included in tables. Copies of Bulletin H - 740 on request.

MITTS & MERRILL, Dept. CP, Saginaw, Mich.

When inquiring specify CP A254  
— see information request blank, pgs. 2-3

#### Closing Small Bags

Eight-page bulletin describes the "Dubl-Tape" closure produced on small paper bags, after they have been filled, by sewing head. Installation pictures and user's reports give full information on this method of packaging. Data is given on the formation of the closure, the sewing head, and conveyor, table, columns available in conjunction with it. Bulletin 100.

UNION SPECIAL MACHINE CO., Dept. CP, 400 N. Franklin St., Chicago, Ill.

When inquiring specify CP A255  
— see information request blank, pgs. 2-3

#### Repacking Cups For Reciprocating Pumps

Pumpcups, — composition cups for repacking pistons of all reciprocating pumps or hydraulic mechanisms are described in handy file size booklet of eight pages printed in four colors. The booklet explains how the tight seal which pumpcups effect between piston and cylinder wall increase efficiency and hold it at high level. Interesting, authentic case histories are cited and the practical data is illustrated with many photos, charts and diagrams. Sent on request.

DARLING VALVE & MFG. CO., Dept. CP, Williamsport, Pa.

When inquiring specify CP A256  
— see information request blank, pgs. 2-3

MOVE MATERIALS  
EFFICIENTLY  
WITH  
**DRACCO**  
PNEUMATIC CONVEYORS

In many plants where chemicals, grains and granular materials must be handled the operations can be done far more efficiently with DRACCO Pneumatic Conveyors. In every installation labor costs are reduced and there are many other savings. Why not have DRACCO Engineers check your handling problem? They have reduced costs for many.



STOP  
DUST LOSSES  
WITH  
**DRACCO**  
DUST CONTROL

Just as surely as night follows day, so does financial loss follow a dust condition. DRACCO Dust Control will: (1) protect health of workers; (2) reduce repair bills and prolong life of equipment; (3) increase plant efficiency; (4) protect you against law suits. Why not consult DRACCO Engineers and stop dust losses?

for METAL FABRICATION write **DRACCO**



We have the experience and equipment to handle intricate fabricating problems. Many have turned this type of work over to our Metal Fabricating Division and have found our Engineers very helpful. We handle work from light gauges up to  $\frac{1}{4}$ " plate — all types of cabinets, gear guards, machine stands and metal parts of every description.

For Further Information Write

**DRACCO CORPORATION**

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

DUST CONTROL EQUIPMENT  
PNEUMATIC CONVEYORS • METAL FABRICATION

When inquiring specify CP A257 — see information request blank, pgs. 2-3

Page 47

WHEN ONE  
SPARK MEANS  
FIRE...

## NEW LITERATURE

### Data Files On Use of Petroleum Products in Sprays, Creams and Specialties

A new series of eight technical data files provides useful information on various petroleum products for manufacturers of household sprays, cattle sprays, corn earworm oils, protective creams for industry, brushless shaving creams and other specialties. The data files are standard size and may be used as folders for filing all essential data on the subject. Data on the front of the file covers properties, principle of formulation, and commercial preparation of the product. Some of the files also contain pertinent inserts. In addition to uses cited these products may also be used in making auto and furniture emulsion polishes, solvent cleaners of industrial floors, trucks and orchard sprays. Copies on request.

L. SONNEBORN SONS, INC., Dept. CP, 88 Lexington Ave., New York 16, N. Y.

When inquiring specify CP A260 — see information request blank, pgs. 2-3

### Automatic Water Stills, Distilled Water Storage Tanks and Automatic Operating Devices

A condensed edition of larger catalog on water stills retains all essential information and presents it in a highly convenient and practical form for quick reference. The data covers single, double, triple, extra duty and larger steam heated stills. Data regarding weight, sizes, dimensions, operation requirements, different types of mountings, distilled water storage tanks and full automatic operating devices. Copies on request.

BARNSTEAD STILL & STERILIZER CO., INC., Dept. CP, 2 Lanesville Terrace, Forest Hills, (Boston) 31, Mass.

When inquiring specify CP A261 — see information request blank, pgs. 2-3

### JUSTRITE MEANS REAL SAFETY

Justrite Safety Products offer the safe means of handling dangerous materials. The Justrite Safety Can and Safety Filling Can reduce hazards when working with volatile liquids. The Justrite Oily Waste Can stores oily grimy waste safely.

These Justrite Safety Products carry the approval of Underwriters' Laboratories, Inc. and Associated Factory Mutual Fire Insurance Companies.

Write today for complete information

**JUSTRITE MANUFACTURING COMPANY**  
2063 N. Southport Avenue, Dept. B-5, Chicago, Ill.

When inquiring specify CP A258 — see information request blank, pgs. 2-3



Lifting and moving cumbersome, awkward-shaped machinery and materials; changing power drives; handling all types of items in all 'round plant construction and remodeling . . . all such handling operations are expedited through the use of Towmotor Fork Lift Truck and the handy Towmotor Crane Arm and Hook attachment. For complete details write Towmotor Corporation, 1218 E. 152nd Street, Cleveland 10, Ohio, and ask for Towmotor DATA FILE.

**TOWMOTOR**

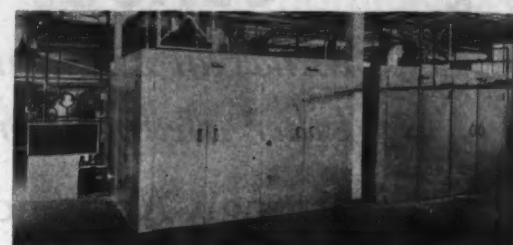


THE 24-HOUR ONE-MAN-GANG

When inquiring specify CP A259 — see information request blank, pgs. 2-3

Page 48

## PLAN NOW for FUTURE FINISHING



### with **KIRK & BLUM** INDUSTRIAL OVENS

In the coming post-war "battle for markets" competition will be keener than ever before in our history. What of your product finishing equipment . . . will it be able to carry on under the increased load, meet new and higher finishing standards, enable you to take utmost advantage of post-war opportunities?

The Kirk & Blum Engineering Staff is thoroughly grounded in the planning, design and erection of complete finishing equipment. These systems are guaranteed to increase production, reduce fuel and labor costs, conserve floor space, promote maximum safety.

Send for Booklet "Industrial Ovens"

**The KIRK & BLUM Manufacturing Co.**  
An Organization of Engineers and Mechanics  
2833 SPRING GROVE AVE. CINCINNATI 25, OHIO

When inquiring specify CP A263 — see information request blank, pgs. 2-3

### REDUCE CHEMICAL-HANDLING COSTS with G-W BREAKERS AND CONVEYORS

#### THE RIGHT COMBINATION

In chemistry, it's the right combination of compounds and elements that counts. In chemical processing, G-W heavy duty Breakers and G-W Conveyors make the correct combination for reducing handling costs.

G-W Breaker's socket-type pick drum speeds breaking time. Semi-frangible materials and solidified chemicals are quickly reduced to the desired particle size for processing, bagging, or mixing. Capacity range as high as 50 tons per hour.

As materials flow from the breaker, their handling is easily expedited by G-W conveyors or G-W elevators which speed them mechanically to storage, process or shipping with minimum manual effort.

Learn how easily your chemical-handling problem may be solved with G-W equipment. Write for Catalog 200-C today.



### GIFFORD-WOOD CO.

Founded 1814

420 Lexington Ave. HUDSON, N. Y. 545 Washington St.  
New York 17 Chicago, 6

When inquiring specify CP A262 — see information request blank, pgs. 2-3

### PLANT TESTS SHOW NICHOLSON TRAPS Raise PRODUCTION



Type A



Type AU



Type B



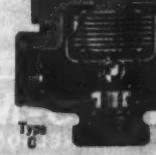
Type ANV

### Faster Heat Transfer in All Steam Units Assured by QUICK, POSITIVE ACTION

Nicholson Industrial Steam Traps are sturdily designed for severe service. Two to six times greater valve area and capacity than average traps. No Air Binding. No Freeze-Ups. No Adjustment. No Dribbling. No Water-Logged Units. Hardened Stainless Steel Valves and Seats. 5 types — sizes  $\frac{1}{4}$ " to 2" — pressures vacuum to 225 lb. Bulletin 843.

### W. H. NICHOLSON & CO.

181 Oregon St., Wilkes-Barre, Pa.



Type C

When inquiring specify CP A264 — see information request blank, pgs. 2-3

### CHEMICAL PREVIEW

**For Cooling FLUIDS  
in CHEMICAL PROCESSES  
with More Accurate Control  
of Temperature . . .**

• Niagara Aero Heat Exchanger cools liquids or gases to within 10° of the atmospheric wet bulb temperature without refrigeration, with a saving of 95% of cooling water cost and saving the equipment cost of cooling tower, piping and pumping. Niagara patented "Balanced Wet Bulb Control" holds fluid temperatures constant with properly controlled heating when needed to restore the minimum temperature.

NIAGARA AERO HEAT EXCHANGERS are successfully applied to liquid and gas chemicals and intermediates, many liquid products in process, baths of water, oils and solutions, hydraulic fluids, power equipment water-jackets, air and gas compressors, generators and condensers.

For complete information and performance records, address:

**NIAGARA BLOWER COMPANY**

25 Years of Service in Air Engineering

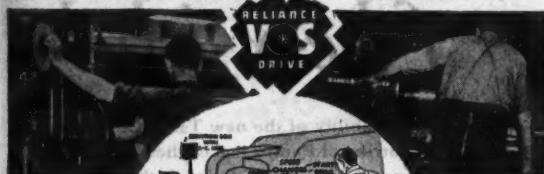
New York Address:  
Dept. CP-94, 6 E. 45th St., New York 17, N. Y.  
Field Engineering Offices in Principal Cities

When inquiring specify CP A265 — see information request blank, pgs. 2-3

**AN All-Electric ADJUSTABLE-SPEED DRIVE  
FOR A-C. CIRCUITS**

SPEED RANGES up to 16 to 1

SIZES 1 TO 30 hp.



**SPEED CHANGES.**  
Speed adjusted smoothly over a wide range while machine is in operation.

**QUICK STOPPING.**  
Obtained electrically from speed adjuster handle or stop button.



**SLOW FOR THREADING and INCHING.** Safe for setting-up and for close inspection in process.

**SMOOTH ACCELERATION.** No clutches. Smooth acceleration and deceleration to protect light material in motion.

ALSO: A direct space-saving drive; speed-control convenience without limitations; reversing; start and stop without interfering with speed setting; ample starting torque.

Send for your copy of Bulletin 311 — FREE

**RELIANCE ELECTRIC & ENGINEERING CO.**

1088 IVANHOE ROAD

CLEVELAND, OHIO

*Sales Offices in Principal Cities*

When inquiring specify CP A266 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

**NEW LITERATURE**

**Batch Mixers for Concrete  
Products Plants**

Batch mixers for concrete product plants in standard capacities of 5, 12, 18, 25, 30, 40, and 50 cubic feet are all illustrated and their specifications conveniently listed in an eight page folder. Features include convenient location of discharge gate lever and automatic locking of base in either open or closed position, spiral blades providing for throwing mix in figure eight motion and oversize square shafts with turned ends to eliminate bending or twisting and secure fastening of blade arms. The low charging side allows use of batchers and measuring devices which speeds up loading without loss of time or motion.

BESSER MFG. CO., Dept. CP, Alpena, Mich.

When inquiring specify CP A267  
— see information request blank, pgs. 2-3

**Adjustable Bag Holders**

Pocket sized folder tells how adjustable bag holders save manpower, speed work in handling filling operations of various bulk materials, reduce spillage. The three types offered are pictured. They are first model which malleable iron jaws, wrought iron pipe standards and steel springs. Jaws are round, provided with teeth for holding bag in oval position; adjustable to any height or width or sack; another holds bag open in rectangular position and is of similar in construction to the first holder; a third model has soft steel construction. Front frame bar holds shovel or basket for sorting or grading when bag is being filled. Weight of these holders is 20 lbs. They are easily moved to point of work.

WEBSTER MFG. CO., INC., Dept. CP, Tiffin, Ohio.

When inquiring specify CP A268  
— see information request blank, pgs. 2-3

**Elevators for Piling and Stacking  
Bags & Crates**

Elevators for a wide range of lifting and piling operations with capacities up to 6000 lbs. are described in colorful four page illustrated bulletin. Handling operations involving cases, drums and bags are pictured. The selection includes telescopic models for piling to extreme heights yet collapsing to permit passage through low clearance openings. Either revolvable or non-revolvable bases are offered. Other features include ball bearing hoist unit, vertical floor lock, operating from side as well as front and zee-bar steel upright frame for strength and rigidity.

REVOLVATOR CO., Dept. CP, North Bergen, N. J.

When inquiring specify CP A269  
— see information request blank, pgs. 2-3

**Better**

**STRAINERS**



- Cadmium Plated Inside and Out
- High-Grade Woven Monel Wire Screen
- Readily Removed Steel Blow-Off Bushing
- Screen and Bushing Come Out Together—Go Back Together, Automatically Aligning
- For Steam Lines or Water, Oil and Other Fluids
- Reasonably Priced
- 6 Sizes from  $\frac{1}{2}$ " to 2" for Pressures up to 600 lbs
- Many Thousands in Service
- Sold by Over 100 Mill Supply Houses

*See Your Supply House or  
Send for Bulletin S-200*

**YARNALL-WARING COMPANY**  
125 Mermaid Avenue

PHILADELPHIA 18, PA.

**YARWAY STRAINERS**

When inquiring specify CP A270 — see information request blank, pgs. 2-3



## Only NON-FERROUS AND STAINLESS FASTENINGS

WHEN you have a toothache you go to a dentist. When you need legal advice you go to a lawyer. Both men are specialists.

By the same token . . . when you need non-ferrous and stainless fastenings come to the house that specializes on them . . . Come to the Harper Organization which is concerned exclusively with the manufacture of bolts, nuts, screws, washers, rivets and specials of Brass, Copper, Naval Bronze, Silicon Bronze, Monel and Stainless . . . an organization not concerned with common steel.

This specialization brings refinements in product quality and "extras" in service to customers that are most rare. Start these "extras" your way by writing on your company letterhead for a complimentary copy of a 4 color, 104 page catalog and reference book.

### THE H. M. HARPER COMPANY 2644 Fletcher Street • Chicago 18, Illinois

BRANCH OFFICES: New York City • Philadelphia  
Los Angeles • Milwaukee • Cincinnati • Houston  
Representatives in Principal Cities



When inquiring specify CP A271 — see information request blank, pgs. 2-3

Page 50

## NEW LITERATURE

### New Volume is Concerned with Systematic Inorganic Chemistry 5th, 6th Groups Non-Metallic Elements

"Systematic Inorganic Chemistry", (of the Fifth and Sixth group of Non-Metallic Elements) has recently been published. The preface of this volume of more than 400 pages, states in part . . . "discussion of a chemical element or compound is complete only when the spectroscopic, structural, thermodynamic, chemical kinetic and nuclear properties have been considered. In addition to these more modern aspects of the subject due consideration must be given to older, humbler but nevertheless important chemical facts that one finds in simple experiments with test tubes, beakers and flasks. The authors have chosen to cover a selected list of chemical topics and to include in the discussion of each enough of both the old and new chemistry to bring out the most important features of the subjects examined. Subject headings include: "Nitrogen and Its Oxides and Sulfides," "Nitrogen Oxyhalides and Oxyacids. The Fixation of Nitrogen," "Hydroxylamine, Amine Sulfonates, Phosphorous Chloronitrides, Hydrazine and Hydrozoic Acid," "Ammonia and Liquid Ammonia Solutions," "Phosphorous, Phosphorous Oxides and Phosphorous Sulphides," "Hydrogen Peroxide, Hydrogen Persulfides and the Peroxyacids, Metallic Peroxides and Superoxides, Polythionic Acids" and other related matter. Price \$6.00 (Any remittances for this book should be sent DIRECT to publishers as per address below.)

PRENTICE-HALL INC., Dept. CP, 70 Fifth Ave., New York, N. Y.

When inquiring specify CP A272 — see information request blank, pgs. 2-3

### EDMONT GLOVES WON'T SNAG OR TEAR ON THE ROUGHEST JOBS ACID --, CAUSTIC --, AND OIL PROOF COMFORTABLE ON HANDS



Special synthetic coating, compounded for extra toughness, assures long wear. Reinforced by fabric lining that cushions hands and absorbs perspiration. Write for further information and samples.

Edmont  
TRADE MARK REG. U.S. PAT. OFF.  
501 ORANGE ST. COSHOCOTON, OHIO  
SPECIALIST IN RUBBERIZED GLOVES

When inquiring specify CP A273 — see information request blank, pgs. 2-3

WIPE OUT  
"hidden losses"  
IN STORAGE

Yale Electric High-Lift Fork Trucks are compact, and can "turn on a dime." This means that storage space can be planned with narrower aisles and more complete use of valuable floor area. The forks can be elevated to high levels enabling you to stack goods to the ceiling.

These modern materials handling tools are safe, speedy, economical—handle all types of products from receiving through to final shipment. Workers can move and tier more with less effort. There's a Yale Electric Industrial Truck to help you cut materials handling costs. Ask for full information—or write for booklet.

**YALE**

THE YALE & TOWNE  
MANUFACTURING CO.  
4530 Tacony Street  
Philadelphia 24, Pa.

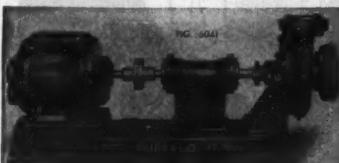


When inquiring specify CP A274 — see information request blank, pgs. 2-3

## TABER PUMPS are f-l-e-x-i-b-l-e

The wide adaptability of the new Taber CLVS series of "General-Use" Centrifugal Pumps makes them more suitable for the processing industry. Their design is the direct result of Taber's years of experience with some of the largest chemical plants. Two widely used pumps in this series are described below. For detailed, helpful information on Taber Horizontal Centrifugal Pumps, write for Bulletin CLVS-339.

Please use your business letterhead.



TABER "GENERAL-USE" CENTRIFUGAL PUMP. Never obsolete. Easily adapted to many jobs. Has over-size ball bearings, extra shaft diameter, deeper stuffing box.

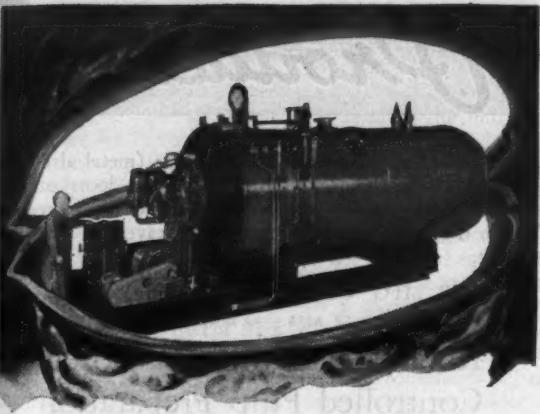


TABER SINGLE SUCTION CENTRIFUGAL PUMP. For Vacuum or Evaporator service. Large chamber surrounds stuffing box for a perfect seal against vacuum.

TABER PUMP CO.  
(Est. 1859)  
320 Elm St., Buffalo, N.Y.

When inquiring specify CP A275 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



### A Steam Plant in a NUTSHELL

"There it is in a nutshell" . . . the most compact means for generating steam for heat, power, or processing . . . the Cleaver-Brooks steam generator . . . shipped in complete "packaged" form ready to set down on the floor and connect to water, oil, and steam lines. The four-pass, fire tube design insures getting the last possible heat out of every ounce of fuel. Steam comes fast and in large volume for the size of the generator — flexible firing rate responds quickly to sudden steam demands.

Cleaver-Brooks steam generators give low-cost steam with the least demands for installation, operation or maintenance. Sizes from 15 to 500 bhp., pressures from 15 to 200 lbs. sq. in. Write for complete information.

CLEAVER-BROOKS COMPANY  
5124 N. 33rd Street, Milwaukee 9, Wisconsin

**Cleaver-Brooks** STEAM GENERATORS

When inquiring specify CP A276 — see information request blank, pgs. 2-3

**ABBE MILLS**  
PUT GRINDING  
AND PROCESSING  
INTO HIGH GEAR.

BALL MILLS  
PEBBLE MILLS  
TUBE MILLS  
ROD MILLS  
JAR MILLS  
DRY BLENDERS  
BOWL MILLS  
CUTTERS  
IMPACT MILLS  
DEFIBRATORS

Maximum quality output in wet or dry grinding, mixing or processing at any temperature, even under vacuum or pressure, of paints and coating materials, chemicals, minerals, metal powders and ceramics. That's the keynote of all Abbe Mills, whether it be in a one quart jar or 3,000 gallon ball mill. Enough types and sizes for every requirement. Get the Abbe equipment catalog.



**ABBE ENGINEERING CO.**

46 Church St.

New York 7, N. Y.

When inquiring specify CP A277 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

### NEW LITERATURE

#### Facts & Figures on Selection, Uses And Installation of Metal Conveyor Belts

Metal conveyor belts — chain link, flat wire and a flex-grid type — are the subject of twenty-four page catalog which provides detailed and practical information for selection, installation and maintenance of such equipment. The belts can be fabricated of any ductile metal. Illustrated directions are given for making belts endless and also for measuring clear opening and mesh per inch for determining selections; a number of meshes, gauges and openings are shown in actual size photos and many actual installations are pictured. Gauge tables: fractional gauges, decimal equivalents and split gauges in decimal sizes complete the technical data provided. Copies of this Catalog Number 3 on request.

CYCLONE FENCE DIV. (U. S. Steel Co.), Dept. CP, Waukegan, Ill.

When inquiring specify CP A278 — see information request blank, pgs. 2-3

#### Space Saving Flexible Coupling — No Dummy, Pilot or Stub Shaft Required

Eight page bulletin describes coupling designed for application where space limitations make a close coupled connection necessary. By bolting coupling flange directly to flywheel or similar component, complete flexibility is provided between driving and driven units in about half the space required generally. No dummy, pilot or stub shaft is required. Engineering details, application diagrams and tables of sizes, ranges and ratings are included.

FARREL-BIRMINGHAM CO., INC., Dept. CP, Ansonia, Conn.

When inquiring specify CP A279 — see information request blank, pgs. 2-3

#### This NON-CLOGGING PUMP

assures UNINTERRUPTED flow  
at Lower Maintenance Cost



Economy Vertical Non-Clogging Pump, Cap. 100 ft. 1500 G.P.M. Heads to 200 ft.

Helping Industry maintain continuous operations by preventing costly clogs before they can occur, is the special duty of Economy "Stand Up" Open Shaft Pumps. These units have generous sized clear waterways for handling unscreened sewage, miscellaneous pulps or trash without clogging. And, uninterrupted flow means greater gallonage per man-hour when man-power is limited. A few of the typical applications of these units are:

- Chemical Industries
- Sewage Disposal
- Underpass Drainage
- Food Industries
- Paper Pulps
- Sludge Removal
- Reduction Plants

Motor is mounted in a yoke directly above the pump and flexibly coupled to the pump. The pump has its own heavy duty bearings and separate shaft. Perfect alignment is always assured. It will pay you to write for Economy's New Pump Data Book — free to Plant Executives and Engineers requesting their copy on company letterhead.

**ECONOMY PUMPS, Inc.**

HAMILTON, OHIO, U.S.A.

When inquiring specify CP A280 — see information request blank, pgs. 2-3



"Here's the answer to . . .  
**FASTER, EASIER  
CARTON STITCHING**"

#### SEE WHAT THEY SAY ABOUT

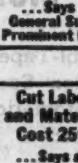
#### ACME SilverStitchers

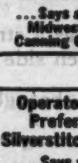
  
"Savings in labor—reduced costs—increased output"—these are advantages that users of Silverstitchers report—results you need and can have in your business with Silverstitchers.

  
Exclusive features you want—Single pedal control—fewer moving parts—made for quiet trouble-free operation—long wear and simple operation—that's the Silverstitch story which appeals to both operators and supervisors alike.

Many types to suit your use—Some of the varied types are shown—that are made to fit your requirements.

Free booklet gives facts—Send the coupon below—get the latest and most complete facts about Silverstitchers for faster, easier, box sealing—don't delay. Mail coupon today.

  
Save Labor of 2 Persons . . . Says General Sup't. Prominent Mfr.

  
Cut Labor and Material Cost 25% . . . Says a Midwest Canning Co.

  
Operators Prefer SilverStitcher . . . Says a Western Paper Manufacturer

**ACME STEEL COMPANY**

2808 ARCHER AVE., CHICAGO 8, ILLINOIS  
Branches and Sales Offices in Principal Cities

ACME STEEL COMPANY  
2808 Archer Avenue, Chicago 8, Illinois

I'm interested in faster and easier box stitching at lower cost. Please send me the FREE folder with all the facts.

Name \_\_\_\_\_

Address \_\_\_\_\_ Dept. \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

When inquiring specify CP A281 — see information request blank, pgs. 2-3



# SARAN\*

## PIPE AND FITTINGS

• Here is a complete system of piping, including fittings and flanges, which is ideal for application in the petroleum industry—for three reasons:

1. Saran Pipe has high tensile strength—is resistant to abrasion, corrosion, acids and alkalies, and heat up to 175°.
2. Meets standard pipe specifications, yet weighs only  $\frac{1}{4}$  as much as iron pipe.
3. Easily installed. Saran pipe may be put together by the hot plate welding method in 45 seconds—or by threading for standard fittings. Sizes range from  $\frac{1}{2}$ " to 4" I. P. S.

Investigate Saran's possibilities in your plant. Acadia engineers will gladly assist you in determining where you can use Saran. Write us today.

**DIVISION WESTERN FELT WORKS**  
4035-4117 Ogden Avenue, Chicago 23, Illinois

Branch Offices in All Principal Cities

Largest Independent Manufacturers and Cutters of Felt

\* Licensees of the Dow Chemical Co.



Processors of Synthetic  
Rubber and Plastics  
Sheets • Extrusions  
Molded Parts

**ACADIA**  
*Synthetic*  
PRODUCTS

When inquiring specify CP A282 — see information request blank, pgs. 2-3



## New! The DUBL-TAPE Sewed Closure for Paper Bags

The Dubl-Tape closure is formed by the new Union Special 60000 C sewing head which automatically performs the following operations:

1. Applies a strip of paper reinforcing tape to each side of bag top.
2. Sews through tapes and bag.
3. Trims bag top to form neat upper edge.
4. Clips tape between bags.

This sewing head is available mounted on a column or table type machine. Ideally suited to paper bags up to 25 lb. size. Fast, efficient, economical; secure closures. For additional data, write today. UNION SPECIAL MACHINE COMPANY, 442 N. Franklin St., Chicago 10, Illinois.

*Bag Closing Machines*

When inquiring specify CP A283 . . . see information request blank, pgs. 2-3

Page 52

# Equipment for Production

## Automatic Power Shovel

*No counterweights; positive safety; easy control*

**Uses** — For unloading coal, lime cement, grain, feed and other bulk materials.

**Features** — Simplified design, few parts, positive safety. No right or left hand mechanism. Winding drum centrally located in supporting frame.

**Operation** — Operator pulls scoop backwards and inserts the scoop in the material to be unloaded. This securely holds the mechanism at stop position. When the operator is ready to start unloading, he gives a sharp jerk on the scoop handles. This action imparts slack to the rope which causes the clutch to engage the winding spool. This winds the rope on the drum until the scoop reaches door and automatically stops.

**Description** — This model (No. 40) employs no counterweights, reversing mechanism eliminating need of them, assuring safety. Two friction plugs are used to assure more friction and impart the reversing action of the mechanism. These are adjustable to give proper tension. The mechanism runs in one direction only. When the shaft runs in the wrong direction for installation, the shovel is merely turned end for end, the bolt holes being interchangeable. Shovel is designed for a maximum travel of 25 feet but equipment may be supplied for longer travel. The usual fittings required for complete operation are sup-

plied (extra) as follows: 1 wood scoop (metal also available), 1 scoop chain with thimble, 2 car doorsheaves, 1 swivel sheave, 50 feet of rope. (Double shovel requires double the parts listed, except door sheaves). Folder on request.

**WEBSTER MFG. CO., Dept. CP, Tiffin, Ohio.**

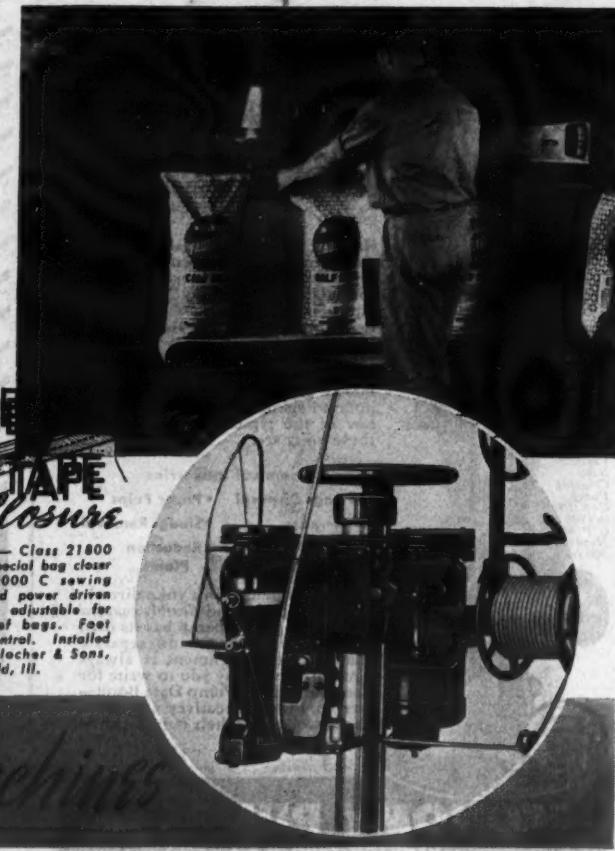
When inquiring specify CP A284 — see information request blank, pgs. 2-3

## Rotary Disc Mill for Closely Controlled Pulp Preparation

*For screen rejects, de-inked stocks, for refining fully cooked chemical pulp and reduction of half stocks*

**Uses** — Single disc mill — used on Kraft, Soda and Sulphite Knotter and fine screen rejects; on hogged bull screen rejects, Knotter and second screen rejects of raw ground wood; on semi-chemical chips of all kinds; on spent chips and spent licorice root after extraction processes; for breaking down lumps in de-inked stock; for refining of Kraft, Sulphite and Soda fully cooked pulp.

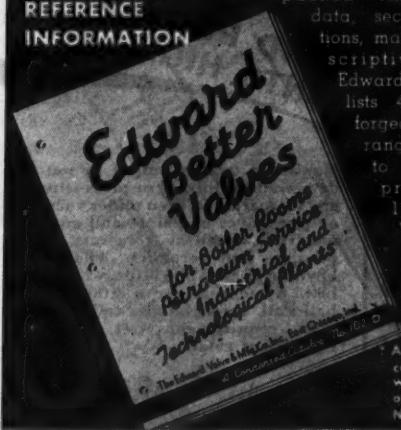
**Features** — Mill is equipped with necked retainer bolts which allow the plates to separate if tramp metal or other foreign materials should gain entrance. Extra heavy construction of base minimizes vibration. Motor is built-in and can be splash-proof or enclosed pipe ventilated type. Construction applies power direct to mill shaft, avoids



Above — Class 21000 Union Special bag closer with 60000 C sewing head and power driven conveyor adjustable for height of bags. Foot pedal control. Installed at Wiedlecker & Sons, Springfield, Ill.

## GET THIS CATALOG!

### FOR COMPLETE STEEL VALVE REFERENCE INFORMATION



The new Edward BETTER VALVES Catalog No. 102 is packed with dimensional data, sectional illustrations, materials and descriptive details on Edward steel valves. It lists 456 cast and forged steel valves ranging from  $\frac{1}{4}$  in. to 12 in. for all pressures from 150 lb to 6000 lb. Yet it is so compact it will easily fit in your desk drawer.

A request on your company letterhead will bring your copy of Edward Catalog No. 102 promptly.

**THE EDWARD VALVE & MFG. CO., INC.**

1230 WEST 144TH STREET • EAST CHICAGO, IND.

**Edward Valves**  
Forged Steel & Cast Steel

When inquiring specify CP A285 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

the deflections that may be found in belt driven units. **Operation** — One set of plates is fixed to the mill shell and other set to rotating disc. Stock is introduced in the center between the grinding plates and discharges around the periphery, movement of the stock being generated by the centrifugal force generated by the rotating disc. Cutting, rubbing takes place between bars and plates. Plates operated at close clearance but do not rub or touch, assuring long life of plates which are cast from a special hard white iron. The stock flows with a spiral motion in the groove between adjacent bars or teeth and is caught between opposing bars in its passage through the plate. Plates are designed so that the stock does not completely fill up space between the plates, which would then act similar to a disc clutch and consume an excessive amount of power. No-load and circulating losses are at a minimum. Finished stock is thrown out around entire periphery of revolving disc and drops out discharge in bottom into conveyor or pump line. Using injection nozzle is recommended, as this combined with conical deflector will distribute the stock uniformly around periphery of plate.

**Description** — Shaft is of extra large diameter high tensile special steel. A combination packing gland and lantern ring seal effectively prevents acid or caustic solutions working along the draft in the front bearings. To avoid defacing the working surface of the plates with bolt holes, T slot bolts are used to fasten plates to runner and shell. A good range of standard plates is available ranging from coarse to fine. Capacity varies with the character of the stock, size of feed and characteristics of finished stock desired; ranging ordinarily from a low of approximately 10 tons, air drying rating, per day, to about 40 tons per day. Power will ordinarily range from 75 HP for light duty to 300 HP for maximum requirements. It is possible to design a single runner disc so that plates are always parallel to each other at any operating speed. This permits unusual control over finished fiber resulting in a pulp with a minimum of flour of "fines" and almost free from shives.

SPROUT, WALDRON & CO., Dept. CP, Muncy, Pa.

When inquiring specify CP A286 — see information request blank, pgs. 2-3

## Vacuum Cup Safety Lifters

For handling sheets, strips of metals, plastic and feeding blanks to power presses



SAFETY LIFTERS, for metals, plastics

**Uses** — Lifting all sheet metals; aluminum, steel, copper; sheet plastics, glass and other smooth surfaced materials. They are of particular help in handling sheets and strips from cases to trucks and from trucks to cutters and presses.

**Features** — Lifters grip securely and permit easy lifting without hands touching sharp edges.

**Description** — The lifters are made with sturdy handles and attached to vacuum cups. A slight pressure causes the cups to grip and hold securely. To release, a slight touch on the automatic "finger-flip" breaks the grip instantly. Lifters are available in styles and sizes that will lift up to 180 pounds. Two models are illustrated, — one for general handling of sheets and the long handled type especially serviceable in feeding blanks to power presses.

WELDED PRODUCTS CO., Dept. R, 331 W. Lafayette St., Syracuse 2, N. Y.

When inquiring specify CP A287 — see information request blank, pgs. 2-3

# L-B Screw Conveyors

## bring copra and sesame seed to crushers . . . to expellers



OILS for soap, salads, and medicines are extracted from copra and sesame seed in many plants in which Link-Belt screw conveyors and elevators are used. One of these is the modern Fabrica de Aceita Hidrogenado y Manteca Vegetal, "La Polar," S.A., Mexican producer of high grade vegetable oils. Here Link-Belt screw conveyors carry copra and sesame cake to the crushers, and from a bucket elevator to expellers, which extract the oils.

LINK-BELT makes all types of screw conveyors of both Helicoid and sectional flight design—types for abrasive, corrosive, or sticky materials; double and triple flight conveyors for smoother flow and higher capacity. Complete equipment, fittings, and accessories are available for horizontal, inclined, and vertical installations.

ENGINEERING Application service by Link-Belt engineers, and Link-Belt's 68-year reputation for skilled engineering and sound construction are additional assurance of efficient installation, low cost in operation and maintenance.



Above: Inclined Link-Belt screw conveyor delivering copra and sesame cake to crusher. Trough cover plate removed for photographing.

Forged steel lug, welded to flight and pipe, adds strength and rigidity. Solid bushing shrunk into pipe, gives extra strength at coupling bolt holes.

Helpful information on screw conveyors is available in this 128-page Link-Belt Screw Conveyor Data Book No. 1289. Send for it.



## LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Toronto 8, Offices, Factory Branch Stores and distributors in principal cities.

**LINK-BELT SCREW CONVEYORS**  
COLLARS • COUPLINGS • HANGERS • TROUGHS • BOX ENDS • FLANGES • THRUSTS • DRIVES

When inquiring specify CP A288 . . . see information request blank, pgs. 2-3

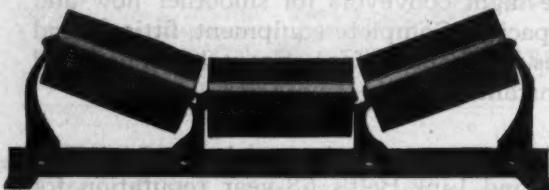
SEPTEMBER-OCTOBER, 1944

# HOW TO OPERATE AT FULL CAPACITY



TO KEEP production lines moving—often 24 hours a day—that's industry's problem today. Delays for repairs are out.

Rex Belt Idlers help solve that problem. They assure trouble-free and uninterrupted service. Easy and inexpensive to install, they keep material flowing under the toughest conditions.



## Here's why:

1. Rollers are one-piece cylinders—removable and interchangeable.
2. Triple labyrinth grease seal—grease stays in and dust stays out.
3. Tapered roller bearings take all thrust—and radial loads.
4. Malleable brackets ribbed to prevent breakage under shock.
5. Large grease reservoir with passage to both bearings.
6. Unit mounting of roller bearings—positive, permanent alignment.

For further information on this and other conveyor units, write for Bulletin No. 410. Chain Belt Company, 1694 W. Bruce Street, Milwaukee, Wisconsin.



**BELT CONVEYORS**

**CHAIN BELT COMPANY  
OF MILWAUKEE**

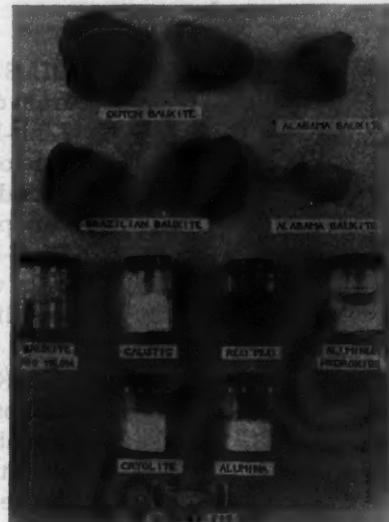
When inquiring specify CP A289 — see information request blank, pgs. 2-3

Page 54

## PRODUCTION

### Wider Applications of Aluminum Foil in Post-War Period

Post-war period to see newer and wider uses of foil for protective and eye appeal purposes



#### STAGES IN ALUMINUM PRODUCTION

to rough handling. The metal barrier is impervious to moisture, heat, light transmission and insect penetration. Unlike most metals aluminum foil is non-toxic and does not cause chemical reaction when in contact with food products.

**Description** — Bags in which aluminum foil is used as an inside layer or as an intermediate layer in the bag itself offer a package which protects the contents. Aluminum foil does not allow moisture transmission. An export carton is made of weatherproof fibreboard, reinforced with hardwood batten and cleats, and lined with an aluminum foil for protection against moisture and infiltration of cargo odors. Packages for dried fruits consist of paper-lined aluminum foil, tightly wrapped around ordinary paper cartons. This is one of the latest developments of this producer of foil in metal wraps in the prewar period. In applying the tite-wrap, the paper side is first coated with adhesive, and is then wrapped, folded and sealed around the container, providing an all over metal covering. An unbroken metallic casing results as all seams are overlapped by at least one half inch. The metal wrapped package both protects and displays the product. Such flexible metal packaging meets many difficult packaging problems and is expected to numerous postwar uses. These heat sealed metal wraps and bags are suited for a wide range of products. The bags consist of a thin flexible sheet of foil laminated with a special paper coated with a thermoplastic adhesive. Because of its resistance to moisture, heat, light and chemical action, foil has been used for processed foods which are highly hygroscopic in which even a small percentage of moisture absorption causes caking and other forms of deterioration. Foil possesses physical properties which combat elements of spoilage. Gases, odors, insects or light cannot pass through. Foil is now being used in war applications such as electrical apparatus and in other ways. The illustration shown here presents the principal stages in the production of aluminum. The two top rows

# ALOYCO VALVES

**NOW AVAILABLE FOR PRESSURES UP TO 600 LBS.**

First developed for war industries, this new Aloyco line for 600 p.s.i. service — of stainless steel throughout — offers longer valve life in the control of corrosive liquids and vapors at elevated pressures.

Despite substantially increased output, the high quality of Aloyco Valves has been maintained in every detail.

Aloyco Stainless Steel Valves and Fittings are available now for new installation on high priorities and for maintenance and repairs under M. R. O. regulations. Send for full information.



**Stainless Steel  
VALVES and FITTINGS**

**ALOYCO STEEL PRODUCTS COMPANY, INC.**  
100 EAST ELIZABETH AVENUE — LINDEN, NEW JERSEY

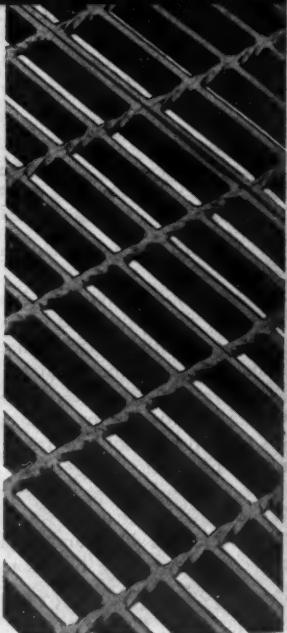
When inquiring specify CP A290 — see information request blank, pgs. 2-3

## THE TWISTED BAR MEANS SAFETY

EQUALLY IMPORTANT, TOO,  
ARE THESE 5 EXCLUSIVE  
ADVANTAGES OF

### BLAW-KNOX ELECTROFORGED STEEL GRATING

1. One-piece electroforged steel construction for maximum strength!
2. Easy maintenance...paint reaches entire surface!
3. Maximum open area for light and air!
4. Self-cleaning...No sharp corners to clog with dirt!
5. Economical and easy to install...cut to fit your specifications! Sample and catalogue on request.



### BLAW-KNOX DIVISION OF BLAW-KNOX COMPANY

2076 Farmers Bank Bldg.  
PITTSBURGH, PA.

When inquiring specify CP A291 — see information request blank, pgs. 2-3

**CHEMICAL PREVIEW**

## NEW BLACKMER ROTARY

SMALL  
CAPACITY  
PUMP

2/3 to 3 1/2 GPM

Pressures to 150 psi

### SELF-ADJUSTING FOR WEAR due to "Bucket Design" (special vane principle)

Small size, quiet operation and wide choice of mountings and drives gives this new pump many industrial applications. It is designed to handle oils, solvents, hydraulic control liquids and all clean liquids having lubricating properties.

Write for mounting diagrams and specifications. Bulletin NEW 2.

#### OTHER BLACKMER UNITS

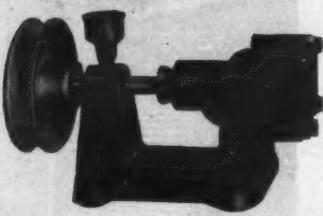
POWER PUMPS	HAND PUMPS	EZY-KLEEN STRAINERS
1 to 750 GPM	1 1/2 to 25 GPM	Capacity to 750 GPM

Pressures to 300 psi. Pressures to 125 psi. Sizes to 6"

### BLACKMER PUMP COMPANY

1849 Century Avenue Grand Rapids 9, Michigan

When inquiring specify CP A293 — see information request blank, pgs. 2-3



## PRODUCTION

show lumps of various types of bauxite, as they are dug from the mines. Then appear the various stages of refining the pure alumina. The last container shows the fine white powder derived when crushed, washed, refined and sifted. This is the pure alumina. At the bottom is a bar of pure aluminum. Information regarding application of foil to when available in planning future production and handling of food products on request.

REYNOLDS METALS CO., Dept. CP, Richmond 19, Va.

When inquiring specify CP A294 — see information request blank, pgs. 2-3

### 1-3/4 Ton Air Hydraulic Press

Set stroke 1/32 to 2-1/2 ins., preselected pressures

Uses — For stamping, forming, riveting, punching, assembling, cutting, — all speed press work.

Features — New operators quickly learn to use this equipment at high efficiency. Extremely high speed or ram can be slowed down to exact requirements.

Description — This is an advanced design air hydraulic speed press with maximum pressure of 1 3/4 tons. Air cylinder and hydraulic pump units are built into press body, easily accessible and removable. Tough materials can take fast blow and fragile materials a squeezing action to prevent shattering. The ram travels the set stroke from 1/32 in. to 2 1/2 in. and delivers preselected pressure. Operator releases control, ram reacts automatically. Other presses of 3/4 ton and 2 1/2 ton available.

STUDEBAKER MACHINE CO., Dept. CP, 1221 S. 9th St., Maywood, Ill.

When inquiring specify CP A295 — see information request blank, pgs. 2-3



### Low Cost, Acid Proof Tower

Filled with Berl Saddles, Knight-Ware Towers are in use as absorbers, scrubbers and distillation columns. The three pieces shown above have an inside diameter of 24" and make a tower 14' 8" high. Actually Knight can make these towers up to 60" inside diameter and as high as desired by adding on extra sections. Being Knight-Ware, they are completely acidproof. They are made specially to serve individual needs.

### MAURICE A. KNIGHT

409 Kelly Ave., Akron 9, Ohio

When inquiring specify CP A296 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

Filter thru  
Stone...  
No cloths or  
pads to change

New construction principle... Filterstones form a rigid support for the filter-aid precoat, a guarantee of clear filtrate. Note large cake space provided. Dry cake discharge if desired.

Cleaned by Stripping Sprays that vigorously wash every inch of filter area. No dismantling. No messy hand labor. Bulletin F-103 gives range of sizes.

LE VAL FILTERS  
SWENSON DIVISION OF WHITING CORP.  
District Engineers in 26 principal cities  
927 Wrightwood Ave. Chicago 14, Illinois

When inquiring specify CP A296 — see information request blank, pgs. 2-3

## FAMOUS in Fire HISTORY

### This Memorable Old Print

Currier and Ives did their best work on this striking study, the "St. Louis Conflagration of 1849." Over-shadowed only by the epic '49 Gold Rush the flames and explosions of this catastrophe wrecked the entire waterfront area.

FREE — A beautiful black and white copy of this print. Ideal for framing. Send coupon today!



this modern  
fire fighter



It is unconditional surrender for fire when *GD 7-9* goes into action. No other extinguisher packs such a wallop. One moment — a blazing conflagration. Next — a quick application of *GD 7-9*. The fire is out. The fight is finished!

*GD 7-9* is absolutely safe, leaves no stain. Its harmless carbon dioxide swiftly smothers flame by excluding oxygen. Oil, gasoline, electrical, and chemical fires submit without a struggle.

*GD 7-9* is dependable—quality mass produced for essential users by General Detroit, famous for over forty years of fire protection. Coupon below will speed details. Mail it now!

if it's  
GENERAL  
it's better

### THE GENERAL DETROIT CORP.

Former Name  
THE GENERAL FIRE TRUCK CORP.

NEW YORK • DETROIT • CHICAGO

Distributors in all principal cities

West Coast Affiliate: The General Pacific Corp., Seattle, Los Angeles, San Francisco

Hang  
this on  
your wall



THE GENERAL DETROIT CORP.  
2200 East Jefferson Ave.  
Detroit 7, Michigan

While supply lasts, please rush free copy of "St. Louis Conflagration." Also details on *GD 7-9*.

Name \_\_\_\_\_

Title \_\_\_\_\_

Attach this convenient coupon to your letterhead and mail. (615)

When inquiring specify CP A297 — see information request blank, pgs. 2-3

Page 55

## MORE WORK PER PUMP... IF IT'S AN EASTERN

The name Eastern as applied to the building of small pumps denotes engineering, design and workmanship that is ordinarily associated only with large industrial pumps. While small in size their performance characteristics compare favorably with those of large pumps. They are not to be confused with laboratory or toy models. A range of over 300 different models makes possible the selection of a small workmanlike pump to answer your needs. Because of their weight and size these pumps are ideally suited for incorporation in finished equipment.

### Single Stage Centrifugal Pumps

Model D-6, illustrated here, is one of a large line of centrifugal pumps manufactured by Eastern. It is compact, lightweight and designed for continuous duty in applications requiring small volumes and pressures. The pump and motor are close-coupled, with an open vane type impeller mounted directly on the motor shaft extension. The pump is sealed by an easily adjustable stuffing box or a mechanical rotary seal with a lapped carbon or bronze face. There are no bearings in the pump proper.

Size:  $7\frac{1}{2}'' \times 4\frac{1}{2}'' \times 4\frac{3}{4}''$ .  
Alloys: Available in Cast Iron, Bronze, 18-8 Stainless Steel, Monel Metal and Hastelloy C.

Power: 1/10 H.P. Totally enclosed, fan cooled induction motor.  
Weight: 11 $\frac{1}{2}$  lbs.



Model D-6



Model W & Z

**Volute Centrifugal Pumps**  
Other single stage centrifugal pumps are the W & Z series. These pumps are used where the economical transfer of relatively large volumes of liquids is desired. Again weight and power consumption has been kept at a minimum; the design and construction are for continuous duty and output is shown on the performance chart shown here. Both pumps are manufactured for use with motors of two different sizes depending upon the volume to be pumped. They are close-coupled volute pumps with open vane type impellers mounted directly on the motor shaft extensions without the use of internal pump bearings. The pumps are sealed with carbon faced rotary seals.

Size:  
Model WA:  $11\frac{1}{2}'' \times 6\frac{1}{2}'' \times 7\frac{1}{2}''$   
Model WB:  $11\frac{1}{2}'' \times 6\frac{1}{2}'' \times 7\frac{1}{2}''$   
Model ZB:  $12\frac{1}{2}'' \times 7\frac{1}{2}'' \times 8''$   
Model ZC:  $14\frac{1}{2}'' \times 8\frac{1}{2}'' \times 10''$

Alloys: Available in Cast Iron or Bronze

Power: General Electric Heavy Duty ball bearing induction type motors. A denotes  $\frac{1}{4}$  H.P., B denotes  $\frac{1}{3}$  H.P., and C denotes  $\frac{1}{2}$  H.P.  
Weight: From 42-60 lbs.



Model GR-1



**Positive Pressure Gear Pumps**  
Designated as the GR series these are compact, positive pressure, spur gear pumps. Quiet and efficient in operation. Designed for dependable flow at high pressures and for continuous duty operation. Used frequently for pumping light or heavy oils, fuel oil, glycerin, glycol and other organic liquids. Pumps are standard with hardened steel gears and therefore not suitable for pumping water. Self priming. The motors are close-coupled to the pumps. Equipped with bronze faced rotary seal.

Model GR-1:  
Size:  $11\frac{1}{2}'' \times 5\frac{1}{2}'' \times 5\frac{1}{4}''$ .  
Weight: 28 lbs.  
Motor: General Electric  $\frac{1}{4}$  H.P. induction type motor.

## EASTERN ENGINEERING COMPANY

49 FOX STREET, NEW HAVEN 6, CONNECTICUT

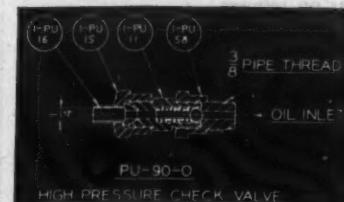
When inquiring specify CP A298 — see information request blank, pgs. 2-3

Page 56

## PRODUCTION

### High Pressure Hydraulic Fittings

Include check valve in which the valve is reversible by placing steel ball ahead of spring and changing oil inlet accordingly



VALVE for hydraulic fittings

the steel ball ahead of the spring, changing the oil inlet accordingly. Also included are a spring loaded and adjustable safety valve for protection against excess pressures, a straight connection, tee and elbow assemblies,  $\frac{3}{8}$  and  $\frac{1}{2}$  inch four-way valves.

**Description** — These fittings are cut from solid steel bar stock. Pipe connections are for  $\frac{3}{8}$  inch outside diameter seamless steel tubing with 0.050 inch wall thickness, and the soldered connections for  $\frac{1}{4}$  inch tubing. Detailed in-

ANKER-HOLTH MFG. CO., Dept. CP, Port Huron, Mich.

When inquiring specify CP A299 — see information request blank, pgs. 2-3

**Uses** — High pressure hydraulic fittings for 3000 pounds working pressure.

**Features** — These fittings include the high pressure check valve (PU-90-0) in which the valve is reversible by placing

the steel ball ahead of the spring, changing the oil inlet accordingly. Also included are a spring loaded and adjustable safety valve for protection against excess pressures, a straight connection, tee and elbow assemblies,  $\frac{3}{8}$  and  $\frac{1}{2}$  inch four-way valves.

**Description** — These fittings are cut from solid steel bar stock. Pipe connections are for  $\frac{3}{8}$  inch outside diameter seamless steel tubing with 0.050 inch wall thickness, and the soldered connections for  $\frac{1}{4}$  inch tubing. Detailed in-

ANKER-HOLTH MFG. CO., Dept. CP, Port Huron, Mich.

### "National" Truck Type Tray Dryers

For batch drying of various chemicals in large quantities. Recirculating system carries heated air to each tray in sufficient volume and at proper velocity to assure uniform drying of each tray load, without dusting. Illustration shows battery of dryers especially designed for material having high initial water content and requiring maximum uniformity in drying. May be steam, gas or electric heated.

Chemical Dryers  
of All Types  
and Sizes



Special Drying  
and Heating  
Equipment

### THE NATIONAL DRYING MACHINERY CO.

2709 N. HANCOCK STREET, PHILADELPHIA 33, PA.

When inquiring specify CP A301 — see information request blank, pgs. 2-3

**REMOVE** objectionable solids...  
**RECOVER** valuable liquids or solids  
from waste water

### INVESTIGATE THIS EFFICIENT METHOD

Hundreds of Link-Belt Liquid Vibrating Screens have proved highly efficient in removing solids from industrial waste water, preventing stream pollution and saving the solids for conversion into salable products. In many cases, such as beans and seeds, both solids and oils are recovered. Greases can be separated. Granular foods and chemicals are dewatered. It will pay you to investigate.

LINK-BELT COMPANY  
2045 W. Hunting Park Ave., Philadelphia, 40.  
Offices in principal cities



### LINK-BELT Vibrating SCREENS

When inquiring specify CP A302 — see information request blank, pgs. 2-3

### CHEMICAL PREVIEW

Largest and Original Producers of Synthetic Gloves  
**THE Surety RUBBER COMPANY** →  
CARROLLTON, OHIO

When inquiring specify CP A300 — see information request blank, pgs. 2-3

# \* Since 1890 \*

FOR more than 50 years, the name of STAHLER has been synonymous with Quality in exclusive Wood Sole Footwear. In normal times more industries used our wood sole shoes than any other make.

Since Pearl Harbor a large percentage of our production has gone for vital War Needs. Consequently we can't sell you all the Davenport wood sole shoes you request but we will certainly try to do our best.

"World's Largest Exclusive Manufacturers of Wood Sole Footwear"

## F. J. STAHLER SHOE CO.

3199 BOIES AVE.

DAVENPORT, IOWA

When inquiring specify CP A303 — see information request blank, pgs. 2-3



### ... for Mixing and Quick Interchange

The simplified design and quick action of the R-S Butterfly Valve (fully opened or closed with four to six revolutions of the hand wheel) has been applied to a three-way valve which is ideal for mixing and quick interchange service. Adapted to power operation as well as ele-

vated temperature and high working pressures.

Simplified control and shut-off for any material that flows or is forced through a pipe—that describes an R-S Butterfly Valve to a "tee."

Sizes to 84 inches . . . 15 to 900 psi. Write or wire for quotation.

#### VALVE DIVISION

R-S PRODUCTS CORPORATION  
4531 Germantown Ave., Philadelphia 44, Pa.



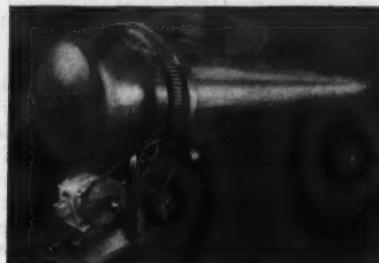
When inquiring specify CP A304 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## PRODUCTION

### Drum For Propagating Penicillin

Applicable to processing many other materials



PENICILLIN DRUM

**Uses** — Designed for the specific purpose of propagating Penicillin. However, its basic and fundamental principles of operation are extremely flexible and applicable to the processing of a variety of materials.

**Description** — All welded construction 40 in. O.D. by 37 feet long, straight side of shell. Designed for 40 lb. W.S.P. of ASME construction. One 20 in. manhole. Hinged cover and hinged bolts. Five charging openings; observation ports 4 in. diameter Pyrex glass  $\frac{3}{4}$  in. thick. Two continuous steel tracks 2 inches thick and 4 inches wide — stress relieved. One 52 inch P. D. 4 inch face ring gear for rotation. Drum driven by 1½ HP motor through reduction gear so that rotation is retarded to 1/20 to 1/5 rpm. Flexible steam joint and valve. Relief valve. Thermometer.

GRAVER TANK & MFG. CO., Dept. CP, 332 So. Michigan Ave., Chicago, Ill.

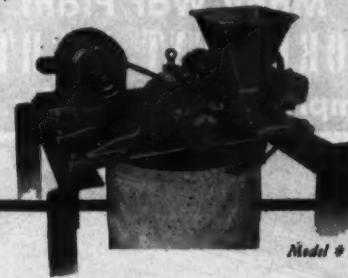
When inquiring specify CP A305 — see information request blank, pgs. 2-3

## COARSE FINE OR SUPERFINE GRANULATING WET MILLING PULVERIZING

Comparisons with ordinary milling methods prove that MIKRO-PULVERIZER "feed-line" efficiency actually saves *more than half* the processing time — *more than half* the manpower and fuel costs.

In grinding many products, it's just *one step* from feed to processed product when you use the MIKRO-PULVERIZER! You get closer particle size control in pulverizing, granulating, or wet milling . . . coarse, fine, or superfine grind.

And that goes for chemicals, food, dyestuffs — crystalline, amorphous, smearable, or hygroscopic materials!



Model #2-TH

The MIKRO-PULVERIZER blends and pulverizes in one operation!

- Eliminates screening
- Keeps air dust-free
- Reduces cleaning time up to 90%
- Saves power from 25 to 75%
- Requires a minimum of attention of unskilled help — mesh controlled mechanically
- Needs little floor space — no steel or concrete foundations

#### FREE TEST GRIND!

Just submit a sample of your material to our test grind laboratory. There's no obligation and all test data are held in strictest confidence.

• Informative new 32-page catalogue showing the complete MIKRO-PULVERIZER line sent FREE on request.

FULVERIZING MACHINERY COMPANY  
60 Chatham Road • Summit, New Jersey

MIKRO-  
COLLECTOR

When inquiring specify CP A307 — see information request blank, pgs. 2-3

Page 57

When inquiring specify CP A306 — see information request blank, pgs. 2-3



There is one method that thoroughly removes moisture, oil, dirt and scale from compressed air—centrifugal force as applied in the Aridifier.

Why experiment with air separators that clog, require periodical cleaning or replacement of elements, cause back pressure or effect only partial removal of contamination? Follow the lead of plants with outstanding war production records and install Aridifiers. You will assure yourself of clean, dry compressed air continuously. Write for bulletin.

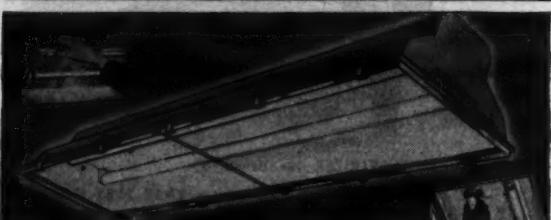
LOGAN ENGINEERING CO.

4900 Lawrence Ave., Chicago 30, Ill.



When inquiring specify CP A308 — see information request blank, pgs. 2-3

Many War Plant  
FLUORESCENT LIGHTING  
Improvements Call for...



“TYPE II-G” SEALED-FLO  
PORCELAIN ENAMEL STEEL UNITS

Listed by Underwriters' Laboratories for Class II, Group G,  
Class III and Class IV Hazardous Locations.

Where manufacturing operations require more light and the location requires dust-tight fixtures, specify Benjamin Sealed-Flo units. These extremely durable porcelain enamel fixtures, with their one piece steel reflector and special type glass cover, seal the interior against dust, dirt and dampness so that lighting efficiency is easily maintained.

Units are available for two and three lamp arrangements and embody many exclusive Benjamin features which facilitate installation, clamping and maintenance. Complete Catalog Bulletin on these units will be sent without cost or obligation. Write Product Information Dept. LL, Benjamin Electric Mfg. Co., Des Plaines, Ill.



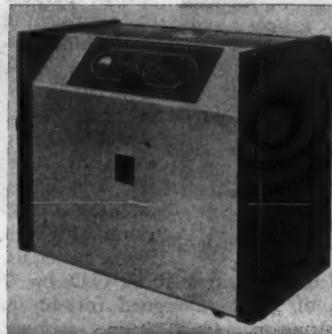
When inquiring specify CP A309 — see information request blank, pgs. 2-3

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## PRODUCTION

### Generators for Induction and Dielectric Heating Loads

Ratings of 1, 2, 5, 10 and 20 kw; self-contained; no external cooling or other auxiliaries



#### HIGH FREQUENCY GENERATOR

Housed in the single cabinet are the oscillator, power supply, blower and necessary switchgear. The high frequency section is completely shielded to minimize the possibility of nearby communication circuits. Automatic timing control permits load cycle adjustment to a predetermined time, which can be automatically repeated. Terminals are provided for remote control.

**Description** — The primary voltage is 220 or 440 volts, single phase for ratings of 5 kw or lower and 3 phase for 10 kw and higher. Air cooled tubes are used in the standardized generators. Their use eliminates bulky water-cooling equipment and allows complete portability with the 2, 5, and 10 kw units and increased portability with the 20 kw. Generators are available for frequencies of 450 kc, 5, 15, and 30 mc for ratings through 10 kw and 450 kc, 2 and 10 mc for 20 kw and higher. Single phase, full wave mercury-vapor rectifiers provide the anode current for generators under 10 kilowatts. For capacities of 10 kilowatts and larger, a three-phase, full wave rectifier, utilizing six mercury vapor tubes is used. Additional information on request.

WESTINGHOUSE ELEC. & MFG. CO., Dept. CP, 306 4th Ave., Box 1017, Pittsburgh 30, Pa.

When inquiring specify CP A310 — see information request blank, pgs. 2-3

### Light Weight Assembly Work Glove

Fingers have non-slip finish; made of Neoprene in snug fit design sizes 7 to 9



#### FOR LIGHT INSPECTION WORK

tip sensitivity through thin texture with durability. Fingers have a non-slip finish for easy gripping of oily objects, greatly facilitating work.

**Description** — Made of Neoprene, resistant to oils, acids, caustics. Available in sizes 7 to 9. Design provides snug fit and complete worker comfort. Details on request.

PIONEER RUBBER CO., Dept. CP, Willard, Ohio.

When inquiring specify CP A311 — see information request blank, pgs. 2-3

At SPROUT, WALDRON  
You Can Match the  
Mixer to Your Mix

Illustrated, for example, is a highly efficient type for all dry, free-flowing materials. It is self-contained, compact, economical of power and extremely so of labor.



From the unusually broad line of SPROUT, WALDRON MIXERS—horizontal, vertical, batch and continuous—each in a complete range of sizes—you can select the best type for your process.

Outline your problem if its solution is urgent and write or wire for appointment. Or if it is not immediate, send for Bulletin — a brief, comprehensive outline of equipment for food and process industries.

**SPROUT, WALDRON COMPANY**  
155 SHERMAN ST. MUNCY, PENNA.  
Manufacturing Engineers Since 1866

When inquiring specify CP A312 — see information request blank, pgs. 2-3



## SPRACO NOZZLES

Write for NOZZLE CATALOG to  
**SPRAY ENGINEERING CO.**  
113 CENTRAL STREET • SOMERVILLE 45, MASS.

When inquiring specify CP A313 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## You're Looking Through the New CESCO Cover-Lite Goggles

As you're looking through these new CESCO Cover-Lite Safety Goggles you're practically experiencing their comfort—because when you actually have them on, you scarcely know they're there.

The combined weight of the lenses and the frame is only 96/100 of an ounce! The frame rests lightly—no pressure on the nose, brow or forehead. They're comfortably worn over prescription spectacles, too.



Cover-Lite Goggle lenses are replaceable

Notice the clear plastic, non-shattering, *replaceable* lenses. They have remarkable strength, and assure safety against impact. Also available with green lenses; and with either transparent green (No. 552) or white marbleized (No. 554) frames.

Write for complete information now.

Before you buy safety equipment, see CESCO'S new 48-page catalog. Write for your copy today.

CHICAGO EYE SHIELD CO.  
2327 Warren Boulevard • Chicago 12, Illinois

## CESCO FOR SAFETY

When inquiring specify CP A314 — see information request blank, pgs. 2-3



## MYSTIK Self-Stick WATERPROOF CLOTH TAPE GUARDS HIS ALL-IMPORTANT SUPPLIES

Every day on every battlefield, guns, planes, tanks, food, medicine and many other important war materials are arriving "factory fresh" because they are sealed against damaging elements with Mystik.

Mystik is a perfect self-stick adhesive for protective packaging, wrapping small parts, shielding, masking, holding parts in the production line and hundreds of other uses. If you have a problem that Mystik might solve, write us complete details and we will submit engineers' recommendations.

### MYSTIK ADHESIVE PRODUCTS

A division of  
CHICAGO SHOW PRINTING COMPANY  
2629 North Kildare Ave., Chicago 30, Illinois

When inquiring specify CP A315 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## PRODUCTION

### Atomizing Nozzles for Spraying Corrosive Liquids

Nozzles are of core type, accurately machined, carefully finished

Uses — For chemical processes involving the spraying of acids or other corrosive liquids.

Features — These nozzles produce a hollow cone type of spray effecting uniform distribution of the sprayed liquid.

Description — A variety of sizes provides a practical range of capacities and spray angles which permits exercise of close control over the spraying operation. For each of these capacities liquid atomization will be the finest possible at available pressures and as complete as can be secured using relatively low hydraulic pressure alone. Nozzles are of core type, accurately machined and carefully finished. Overall dimensions are 1 inch diameter and length of 1 1/2 inches. Further information on request.

SPRAYING SYSTEMS CO., Dept. CP, 4027 W. Lake St., Chicago 24, Ill.

When inquiring specify CP A316  
— see information request blank, pgs. 2-3

## Laboratory Furnaces for Operation at 2500° F.

Maximum 2750° F. for heating in oxidizing atmospheres and for special conditions

Uses — These furnaces are built for industrial and laboratory use where the materials are to be heated in an oxidizing atmosphere at temperatures above those attainable with metallic elements. They also have many applications where special conditions are involved, such as rapid heating or heating in a special atmosphere not injurious to silicon carbide.

Description — These high temperature laboratory furnaces are equipped with a silicon carbide muffle and are heated with non metallic heating elements located above and below the muffle to assure uniform distribution of heat. Either a plug-type or a counter balanced door is available. Furnaces are made in various sizes and dimensions of 2 1/8 inch height and 3 1/2 inch width and 5 inch depth. Also in dimensions of 5 1/2 x 6 x 18 inches. For bench mounting or with legs for floor mounting. Complete specifications on request.

HARPER ELECTRIC FURNACE CORP., Dept. CP, Niagara Falls, N. Y.

When inquiring specify CP A317  
— see information request blank, pgs. 2-3

HOW AMERICAN INDUSTRY PRODUCES MORE, FASTER, BETTER—WITH BOWSER EXACT LIQUID CONTROL

WHEN BOWSER EQUIPMENT  
WENT TO WORK,

# Regrinds Dropped from 25% to 1/2%

Precision gages, such as those made by Standard Gage Company, Inc., of Poughkeepsie, N. Y., and required by thousands of manufacturers in scores of industries, have tolerances as small as .00001 inch.

Standard Gage, in its grinding operations, works to .0001, after which the gages are lapped to the final tolerance. Abrasions, due largely to particles in the unfiltered coolant, were causing regrinds averaging 25%.

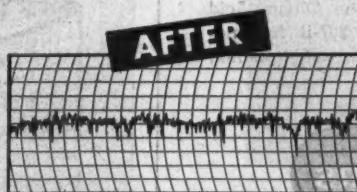
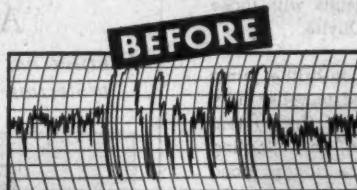
Bowser Pressure Filters were installed ... and regrinds dropped to less than 5/10 of 1%! Picture that in terms of savings in time, labor and money!

Bowser Filters are only one of the many types of Bowser equipment that are helping American manu-

facturers build more, faster, better—and usually with real money-saving.

In the chemical industry, the applications of the Bowser Proportioner, for example, are almost limitless. From the standpoints of accuracy, uniformity of product, maintaining of records, economy of investment and plant space, and speed of operation, they will quickly prove themselves indispensable.

Bowser Diatomaceous Silica Pressure Filters, for another example, provide longer filtration cycles, increased filtration, controlled quality, easier cleaning and economy of operation. Whatever your liquid control problem, chances are that Bowser equipment will handle it best. Write for information. BOWSER, INC., Fort Wayne 5, Indiana.



Surface variations (graph lines represent five-millionths of an inch) after a finish-grinding with unfiltered coolant oil prepared only 2 days previously. Scratches, scarcely visible, were so deep regrinding was necessary.

## BUY WAR BONDS

Not only has Bowser's war production earned the Army-Navy E... Bowser equipment has helped earn it for scores of other companies.



The Name That  
Means Exact  
Control of Liquids

When inquiring specify CP A318 — see information request blank, pgs. 2-3

Page 59

# Is Your Acid-Pumping CAUSING HEADACHES?



1 1/4 inches

2 inches

4 inches

**T**RY an Olivite Pump on your toughest problem. Try a 1 1/4, 2 or 4 inch pump. Compare results with those of your present pumps. You'll like the Olivite.

What are its features? It's a strong, non-brittle pump with contact parts of casing, cover and impeller fully protected by selected durable materials. Spring tensioned gland, lubricating lantern ring, and floating stuffing box keep the packing in place and in good working condition. The shaft is protected and the impeller locked on. Full details of the Olivite Acid Handling Pump are given in Bulletin 307-R. In sending for your copy, give details of your acid-handling problem.

**OLIVER  
UNITED FILTERS  
INC.**

New York 18, N. Y.  
33 West 42nd Street



Chicago 1, Ill.  
221 N. LaSalle Street

San Francisco 11,  
California

Sales & Engineering Representative

E. Long Ltd. — Orillia, Ont.

Factories: Oakland, Calif.—Hazleton, Pa.—Orillia, Ont., Canada—Melbourne, Australia  
9-OUT-4

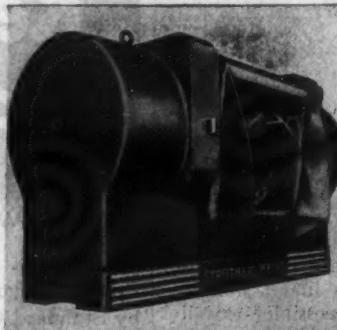
When inquiring specify CP A310 — see information request blank, pg. 2-3

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## PRODUCTION

### Shredder Avoids Pulp Collection In Trough Corners Above Blades

No corner irons or large fillets required to prevent pocketing; production increased



SHREDDER requires no corner irons

collection of moistened pulp in the corners of the trough above the blades with the result that it does not receive treatment.

**Description** — The shredders are equipped with anti-friction bearings, straddle mounted driving gears, automatic lubrication system. The use of corner irons or large fillets to prevent pocketing is generally unnecessary in these machines, resulting in increased production. There is also a substantial increase in jacket area through elimination of the large corner fillets formerly required. Multiple v-belt, silent chain or direct connected motors are optional. The machines are constructed of any commercial metal or alloy, and are now available in sizes up to 4000 gallons working capacity.

STRUTHERS-WELLS CORP., Dept. CP, Warren, Pa.

When inquiring specify CP A320 — see information request blank, pg. 2-3

### "All Service" Gas Masks Have "All-Vision" Facepieces

Canister has special filter for approved respiratory protection against toxic dusts, fumes, fogs, etc.



STANDARD AND MODEL S CANISTERS

special emergency conditions.

**Features** — Special "Model S", in addition to having the features of the standard model, is equipped with a canister

**Uses** — For shredding alkali cellulose, paper, plastics, asbestos, foods and other fibrous materials.

**Features** — Action provided by design of special mixing blades combined with a serrated saddle and advanced type of construction embodied in the mixing chamber minimize the tendency toward the collection of moistened pulp in the corners of the trough above the blades with the result that it does not receive treatment.

## For Chemical Porcelain

of any shape or design

Write

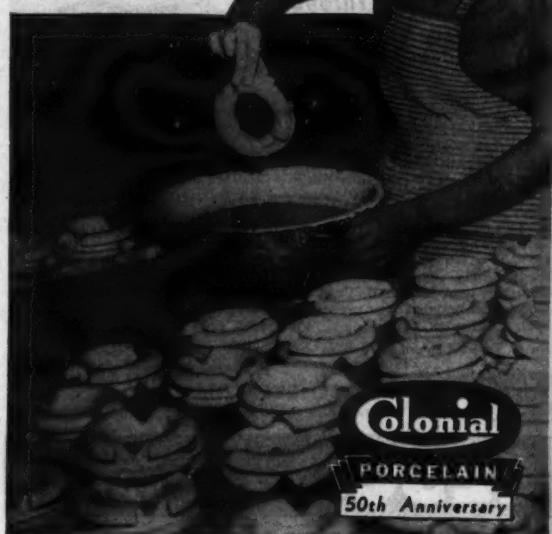
**The Colonial Insulator Co.**

967 Grant St., Akron, Ohio

Branch Office

2753 W. North Ave.

Chicago 47, Ill.



**Colonial**  
PORCELAIN  
50th Anniversary

When inquiring specify CP A321 — see information request blank, pg. 2-3

## CLARKTOR-6

### INDUSTRIAL TRACTOR

*Moves Material  
Faster*

TO POINT  
OF USE



*Another  
product of  
CLARK  
EQUIPMENT  
COMPANY*

An all-purpose tractor for inside and outside heavy duty work.

Write for New Vest Pocket Catalog.

## CLARK TRUCTRACTOR

BATTLE CREEK, MICHIGAN, U.S.A.

When inquiring specify CP A322 — see information request blank, pg. 2-3

CHEMICAL PREVIEW

Free

COMMERCIAL

COLD FORMED HEAVY  
FLANGED AND DISHED  
STANDARD TYPE  
LARGE TYPE  
FLANGED ONLY

COMMERCIAL SHEARING & STAMPING CO.

Every one who buys tank heads should have this booklet — gives complete specifications, pricing instructions and weight of "COMMERCIAL" cold formed heads Standard and A.S.M.E. types in flanged and dished and flanged only.

### SEND FOR COPY TODAY

Save money on your head requirements, "COMMERCIAL" heads are formed in solid dies, insuring accurate diameters, and smooth flanges — other types of heads available from our dies also.

THE COMMERCIAL SHEARING & STAMPING CO.  
YOUNGSTOWN, OHIO

When inquiring specify CP A323 — see information request blank, pgs. 2-3

### FACTS FOR PUMP OPERATORS

THE CANFIELD OIL COMPANY  
REFINERS OF PETROLEUM  
ESTABLISHED IN 1865  
GENERAL OFFICES CLEVELAND, O.  
CAMPFIELD, PA.  
November 1, 1943  
Darling Valve & Manufacturing Company  
Williamsport, Pennsylvania  
Gentlemen:

You might like to know the facts regarding the Darcova Pumcup which we installed here last spring. Previously we had been using hydraulic packing on Cameron boiler feed pumps, 10 x 7 x 13, pumping 180 gallons of water at 125°F., using 125°F. steam. The piston travel was 103' per minute. Over a period of fourteen years we had changed packing about every two weeks. On March 29, 1943, we installed your Darcova Pumcup with Darling pistons. These cups are still in service and are now beginning their eighth month of use not only gotten our money's worth out of the cups but have saved money and time. We have now installed Darcova Pumcup on two other pumps, one pumping oil and one pumping water.

Very sincerely,  
THE CANFIELD OIL COMPANY

Darcova Pumcup have been used by leading operators for more than thirty-five years. By employing the simple cup principle, Darcova increases pump capacity and pumping efficiency. Saves up to \$100 per pump per year. Send for free bulletin No. 4105.

DARLING VALVE &  
Manufacturing Co.  
WILLIAMSPORT, PA.

When inquiring specify CP A324 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

### PRODUCTION

containing a special filter. Additional protection of the special model offers less resistance to breathing — accomplished through a uniquely-designed, large area filtering element.

**Description** — Both the standard and special models have the "All-Vision" facepieces affording a gas-tight seal, extremely wide-angle vision, plus easy wearing comfort and non-fogging lenses. Facepiece is easily adjusted and put on. Model "S" canister fits into the standard carrying case by removal of the small stop at bottom of case. Bulletin EA-8, available upon request, contains many interesting details about these masks, including price lists.

MINE SAFETY APPLIANCES CO., Dept. CP, Braddock, Thomas & Meade Sts., Pittsburgh, Pa.

When inquiring specify CP A325 — see information request blank, pgs. 2-3

### ROLLS FOR LABORATORY TESTING

Made to meet specific hardness, pressure needs

**Uses** — Many types of rolls are used in laboratories for test processing of various materials. Rolls of this sort are best built to the requirements of the individual job for the exact pressure desired.

**Description** — For example certain test operations require rolls built with exceptionally soft rubber covers and provided with three flat areas on the roll surface. Detailed information regarding rolls for processing or testing operations available on request.

RODNEY HUNT MACHINE CO., Dept. CP, Orange, Mass.

When inquiring specify CP A326 — see information request blank, pgs. 2-3

### SECO'S PC\* PAYS OFF!

EFFICIENTLY SCREENS MORE TONS  
PER HOUR—WET OR DRY CHEMICALS



PC\*-Positive Control of the Vibrating Action

### Because Every Inch of Screen Goes to Work

Seco's PC sets up a surer, sharper whip over every inch of screen, thus driving materials more quickly and accurately through the meshes and Seco's patented Auxiliary Vibrator enables efficient screening of damp, sticky materials. Seco screens are in use everywhere. Over 150 models available.

Send for Free Catalog Today! Dept. E



SCREEN EQUIPMENT CO., INC.  
9 Lafayette Avenue, Buffalo 13, N.Y.

When inquiring specify CP A327 — see information request blank, pgs. 2-3

## Where STURDY FLEXIBLE COUPLINGS ARE NEEDED



Upper left shows a typical use of DIAMOND Flexible Coupling—engine to generator. Simplicity of Coupling is illustrated above.

The Diamond Flexible Coupling combines strength, durability, convenience, and adaptability.

**All Steel:** No flexible material to deteriorate. Flexibility is in the design.

**Simple:** Only three rugged parts—two sprockets and a length of Diamond Double-Strand Roller Chain. Installed quickly—and quickly disconnected.

**Double-Strand Roller Chain** is used for extra strength and for compactness. Greater horsepower, larger shafts are accommodated for given outside coupling diameter.

**Bulletin No. 12** gives data on wide range of sizes, and illustrates how DIAMOND Flexible Couplings answer coupling problems.... Sent on request. DIAMOND CHAIN & MFG. CO., 411 Kentucky Avenue, Indianapolis 7, Ind.

Below, DIAMOND Coupling enclosed in revolving casing, connects 50 H.P. motor and pulverizer.



# DIAMOND FLEXIBLE COUPLINGS

When inquiring specify CP A328 — see information request blank, pgs. 2-3

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## M-S-A All-Service\* GAS MASKS WITH MODEL-S CANISTER



APPROVED BY THE U. S. BUREAU OF MINES

The M.S.A. All-Service Mask with Model S canister protects against all poisonous industrial gases, toxic fumes, dusts, mists, smokes, etc.—singly or in combinations (including carbon monoxide), where there is sufficient oxygen present to support life; and offers maximum comfort and convenience in service. Canister has uniquely-designed large-area filtering element for smokes and fumes—and lower breathing resistance. Mask is equipped with All-Vision facepiece, which allows unobstructed vision at all angles, fits comfortably without drawing or binding, and affords a perfect gas-tight seal. Both the Model S All-Service and the Standard All-Service canister are interchangeable in the harness. Carrying case accommodates mask with either canister, together with spare. Write for details on the M.S.A. All-Service Mask in Bulletin No. EA-81.

\*Trade Mark Reg. U. S. Pat. Off.

**MINE SAFETY APPLIANCES COMPANY**

Braddock, Thomas & Meade Sts., Pittsburgh, Pa.  
District Representatives in Principal Cities

When inquiring specify CP A329 — see information request blank, pgs. 2-3

**SNAP**



**YOUR FINGERS  
AT DESTRUCTIVE BACKLASH**

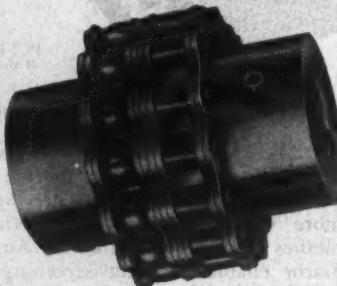
AMAZING flexibility without destructive backlash . . . that's what you get with Baldwin Roller Chain Flexible Couplings. Their patented construction, with one chain strand of cylindrical rollers and the other strand of oversized convex rollers, allows true torsional flexibility . . . eliminates direct shear stress on the pins.

Complete information on this truly flexible coupling, together with horsepower tables, design data, sizes and prices, is contained in Baldwin Catalog M, the 120-page chain drive data book. Write for your copy or call the B-D man.

BALDWIN-DOUCKWORTH, DIVISION OF CHAIN BELT COMPANY, SPRINGFIELD 2, MASSACHUSETTS

**BALDWIN**

**ROLLER CHAIN BELTS**

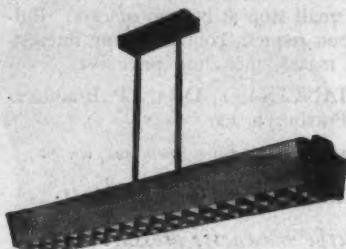


When inquiring specify CP A330 . . . see information request blank, pgs. 2-3

## PRODUCTION

**Fluorescent Unit For Office and Drafting Rooms—4 40 Watt Lamps**

*Width 11 ins., length 49 ins., offered in ceiling and stem types*



FLUORESCENT UNIT

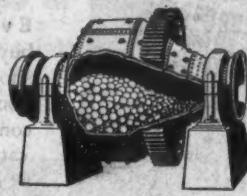
**Uses** — This fluorescent unit is especially suitable for offices, drafting rooms and similar areas.

**Features** — The unit has etched ribbed glass for side panels to prevent glare and open louvres in the bottom to prevent direct

view of the lamp. This construction contributes to easy maintenance as there are no horizontal surfaces on which dust can collect. Lamp replacement is provided by a hinging arrangement of the louvres whereby lamps can be easily reached for replacement.

**Description** — All steel construction; metal and caps are pierced in a decorative design, backed up with translucent plastic. Two stem canopy construction using a special mounting strap reduces mounting time and cost of installation. Ballasts are mounted in an inverted position

## THE HARDINGE CONICAL MILL



for

Dry grinding in closed circuit with the Hardinge Reversed-Current Air Classifier, screens or open circuit.

Wet grinding in closed circuit with the Hardinge Counter-Current Classifier or in open circuit.

Low maintenance on abrasive materials.

Write for Bulletin 13-D

**HARDINGE**  
COMPANY, INCORPORATED — YORK, PENNSYLVANIA  
NEW YORK, CHICAGO, SAN FRANCISCO, TORONTO

When inquiring specify CP A331 — see information request blank, pgs. 2-3

**LAMMERT  
ROTARY**

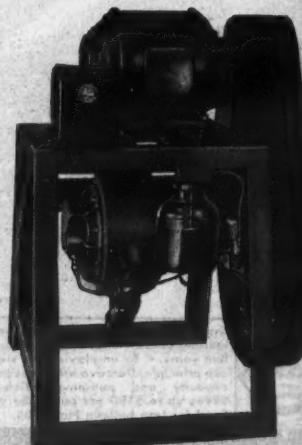
**VACUUM PUMPS**

VACUUM TO 0.02 MM. OF BAR.

MODELS FOR 3-580 C.F.M.

**NEW!**

**SEND  
FOR  
BULLETIN  
MODEL  
SWMF.**



**LAMMERT & MANN CO.**  
215-21 N. WOOD ST. CHICAGO 12

When inquiring specify CP A332 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## Here's How to Give SPRAY NOZZLES Flexibility



Adjustable joint as used with  
"Vejet" flat spray nozzles. Various sizes are available.

Spraying installations involving changes in spray direction work better with time-saving Spraying Systems Adjustable Joints. Used between headers and spray nozzles, these joints permit easy and quick final adjustment of spray direction in washing machines, rinsing processes, etc.

For additional illustrations of their use and list of sizes, send for a free copy of Catalog No. 22.

### SPRAYING SYSTEMS COMPANY

4037 W. Lake St. Chicago 24, Illinois

SPECIALISTS IN THE DESIGN AND  
MANUFACTURE OF SPRAY NOZZLES

When inquiring specify CP A333 — see information request blank, pgs. 2-3

## THIS BOOKLET

Tells WHY and HOW  
CARDOX

FIRE EXTINGUISHING SYSTEMS

Provide



Learn how: five fire extinguishing requirements are met in a single system; how systems are engineered for the specific hazards covered; how carbon dioxide is given enhanced fire extinguishing performance; how carbon dioxide is released in mass discharge at high rate of application; how one hazard or many can be protected by a single system. Illustrates various types of hazards and type of application required for each. Ask for Bulletin 1694.

### CARDOX CORPORATION

Bell Building, Chicago 1, Illinois

When inquiring specify CP A334 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## PRODUCTION

within the channel and are only partially enclosed, providing a cooler operating position. Metal parts finished in satin zinc, one coat of clear enamel applied for extra protection. Reflecting surfaces are white enamel of 88% reflectivity. Stem suspension or close-up mounting. Folder 4-44 on request.

THE F. W. WAKEFIELD BRASS CO., Dept. CP, Vermillion, Ohio.

When inquiring specify CP A335 — see information request blank, pgs. 2-3

### Water Conditioner for Stills & Evaporators

Eight page two-color illustrated folder describes features and application of a water conditioner which is an anti-scale, anti-corrosion and anti-foaming agent for water stills and evaporators. It need be added only once daily for safe cleaning of the equipment. This agent, K. A. T. is a liquid, a pure emulsion of plant and vegetable materials reduced to colloidal dimensions. Folder and detailed information on request.

AMERICAN K.A.T. CORP., Dept. CP, 331 Madison Ave., New York 17, N. Y.

When inquiring specify CP A336 — see information request blank, pgs. 2-3

### Worm Gear Reduction Unit Uses Double Wall Cool Air Chamber

Air passage completely envelopes oil reservoir in which gears operate; exhaust fan on coupling end of shaft draws air from opposite end



#### FAN COOLED REDUCTION UNIT

Provides increased load carrying capacity in worm gear reduction units for mills, factories, chemical and food processing plants.

**Features** — Fan cooling system which permits pronounced reduction in size of unit required for given horsepower output. The basis of the cooling system is a new type of double wall construction.

This provides an air passage completely enveloping the oil reservoir in which the gears operate.

**Description** — The inner housing wall forming the reservoir is deeply finned on the air side, resulting in increase in heat dissipating surface. An exhaust fan located on the coupling end of the worm shaft draws air at high velocity through the space between the housing walls from a grill at the opposite end of the unit. It operates with either direction of rotation. In some cases it is stated that these units offer as much as twice the capacity of standard worm gear units of equal frame size when operated with 1750 rpm motors. Catalog Number 300 gives complete information for planning installations. It contains rating tables for six sizes ranging from 4 1/4 inches to 12 inches centers, and data on dimensions and shipping weights.

CLEVELAND WORM & GEAR CO., Dept. CP, 3249 E. 90th St., Cleveland, Ohio.

When inquiring specify CP A337 — see information request blank, pgs. 2-3

## PRINTWEIGH for PENICILLIN



Right—View taken in the newly constructed plant at Commercial Solvents Corporation, Terre Haute, Indiana, showing the room in which vials are filled with Penicillin—C.S.C.

● Penicillin—one of the greatest discoveries of modern medical science—looks to Toledo for unerring printed weight records during the long, complicated production process.

In this modern new plant, Toledo Printweigh keeps accurate weight control of the concentrated solution—the precious product which is obtained in mere 20-gallon lots from each of the huge fermenting tanks.

Similarly—in every conceivable branch of industry today—Toledos are specified for utmost accuracy, speed and dependability in weighing, balancing, force-measuring, counting... Toledo Scale Company, Toledo, Ohio.

## TOLEDO SCALES

When inquiring specify CP A338 — see information request blank, pgs. 2-3

Page 63



## American MONORAIL Equipment

furnishes an ideal system for handling batch between process. It assures control using scales in the system or accompanying carriers. Jolt-free ride will not cause segregation of particles, an important feature when batch must be uniformly mixed.

To insure the quality of your finished product, install American MonoRail Overhead Handling Equipment. Our engineers will gladly show you how your product can be carried at the lowest possible cost and the highest possible efficiency.



NO OBLIGATION  
Write Today!

THE AMERICAN MONORAIL CO.  
13109 Athens Ave. Cleveland 7, Ohio



When inquiring specify CP A339 — see information request blank, pgs. 2-3

Page 64

## PRODUCTION

### Variable Speed Transmission with Remote Control, Universal Mounting

*Movement of flanges controlled mechanically, unit mounts in any position; for drives up to 1 HP*

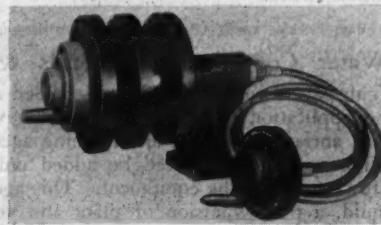
**Uses** — On band saws, bottle capping machines, conveyors, drills, embossing machines, etching machines, internal grinders, lapping machines, lathes, mixers, ovens, and packaging machinery.

**Features** — Simplified remote control and universal mounting. Compact flexible shaft makes it possible to mount unit anywhere in or on machine and to place control in safe location, convenient to operator. Movement of flanges is controlled mechanically and not by belt-pull so that unit may be mounted vertically, horizontally or in required position.

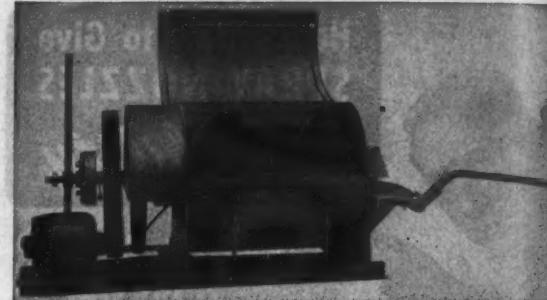
**Description** — The unit utilizes v-belts to provide stepless control of speed through a 3 to 1 ratio. Plastic flanges, steel faced for long service contribute to light weight. The transmission is named "Speed Jack".

AMERICAN PULLEY CO., Dept. 220, 4220 Wissahickon Ave., Philadelphia 29, Pa.

When inquiring specify CP A340 — see information request blank, pgs. 2-3



TRANSMISSION and control



### 5 Reasons Why the Multi-Mixer Has more advantages

1. A better mix in less time
2. Multi special arranged paddles
3. All material in action
4. Well built and dust-proof
5. Fully equipped with SKF bearings

Built in sizes 3 to 60 cu. ft. Motor drive or geared head motor drive or tailor made to fill your requirements.

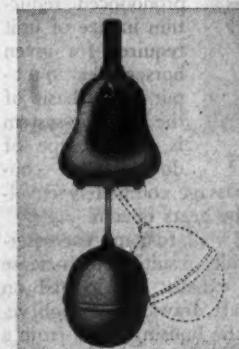
Write for full information.

The Multiplex Concrete Machinery Co.  
Elmore, Ohio

When inquiring specify CP A342 — see information request blank, pgs. 2-3

### THE Automatic WATCHMAN THAT CONTROLS BIN LEVELS

#### the TELLEL

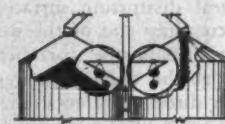


Write for descriptive bulletin  
No. 440 giving full engineering details.

Automatic control of storage level of bulk materials or liquids in bins and tanks is made possible by the Tellel.

The Tellel's swinging float ball, when contacted by rising or falling levels of material, automatically operates feeders, conveyors, gates and valves.

Eliminate spillage, waste of space and worry. Investigate possible Tellel applications in your plant.



#### Special Sizes and Shapes

... of firebrick made accurately and quickly right on the job, assuring tighter joints and longer lasting walls and arches in furnaces, boilers and acid chambers.

Low Cost cutting of all Refractories and Masonry Materials, regardless of hardness.

Clipper Manufacturing  
Company

4634 MANCHESTER AVE.  
ST. LOUIS 10, MISSOURI

#### FREE TRIAL

INFORMATION ON REQUEST



### STEPHENS-ADAMSON

MFG. CO. SealMaster Ball Bearings  
Tellel-Bin Level Car Loaders Car Pulleys Winches  
Controls Saco Speed Reducers

11 RIDGEWAY AVE., AURORA, ILLINOIS

When inquiring specify CP A341 — see information request blank, pgs. 2-3

When inquiring specify CP A343 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

### Finer Mesh Industrial Wire Cloth in Steel, Brass, Copper, Monel Up to 200 Mesh

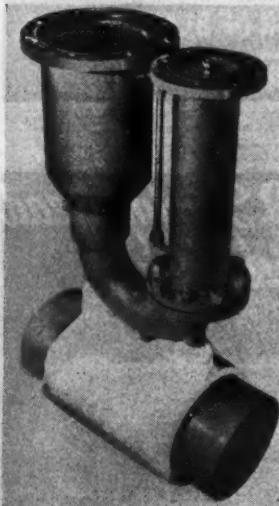
Pocket size engineering data and price list book covers wide range of industrial cloth of manufacturer specializing in the finer meshes and more intricate weaves of the non-ferrous materials. Many of the finer meshes are manufactured in steel but primarily the products are brass, copper, bronze, aluminum, stainless steel, Monel, nickel and similar material in meshes up to 200 mesh. The book contains nearly a hundred pages and all information is presented for easy reference.

C. O. JELLIF MFG. CORP., Southport, Conn.

When inquiring specify CP A344 — see information request blank, pgs. 2-3

### High Vacuum Diffusion Pump Shows Unusual Speed Pumping Performance

*Made entirely of metal, it has four stages of jets to give high pumping speed; 8 inch inlet flange for gas handling capacity*



ALL METAL DIFFUSION PUMP

**Uses** — Pumps of this type have application in the fields of high vacuum, distillation, dehydration of material from the frozen state and in various types of vacuum metallurgy.

**Features** — Has unusual speed characteristics especially when used in conjunction with the producer's own fast pumping diffusion pump oil. Against a modest forepressure requirement of approximately 500 microns of mercury absolute, it will handle around 2,500 cubic feet of free air per minute in the pressure range of .1 to .01 microns.

**Description** — Made entirely of metal and designed to withstand the rigors of industrial use, it has four stages of jets to give the high pumping speed and an 8 inch inlet flange for large gas handling capacity. It is equipped with an electric heated boiler with automatic thermostatic switch and has built in cut-off switches in case the water supply fails or the boiler overheats. Water cooling coils on boiler give short cool down period and allow for rapid exposure of pump to atmospheric pressure. Power supply 110-220v. AC. Power input 2.4 KW. Oil - 3-1/2 qts. NR Type TS. Recommended operating range 10,001 microns. Maximum forepressure 400 microns. For most applications a 25 CFM forepump is sufficient. Operating boiler temperature 207 degrees C or 405 degrees F. Literature on Type B-8-0 Vacuum Diffusion Pump on request.

NATIONAL RESEARCH CORP., Dept. CP, 100 Brookline Ave., Boston 15, Mass.

When inquiring specify CP A345 — see information request blank, pgs. 2-3

**• HEAT EXCHANGERS  
• PRESSURE VESSELS  
• HEAVY-WALL WELDED  
FABRICATION**

*to Specification by*

**EDGE MOOR**

**ALL COMMERCIAL CODES**

**ALL COMMERCIAL METALS**

*For over 50 years we have been designing  
and fabricating equipment for  
the Petroleum, Chemical  
and allied industries.*

**EDGE MOOR IRON WORKS, INC.**

Main Office and Works: Edge Moor, Delaware

Branch Offices: New York 20, N. Y., 30 Rockefeller Plaza • Chicago 2, Ill., One North LaSalle Street

When inquiring specify CP A346 . . . see information request blank, pgs. 2-3

For pumping -

ACIDS • HYDROCARBONS  
CONDENSATE • CAUSTICS  
ORGANIC LIQUIDS  
DOWTHERM • DIPHENYL  
SLUDGES • BLACK LIQUOR



Water-cooled ball  
bearings and stuffing box.  
Sizes 1" to 6" discharge.

## Quick Facts About DAYTON-DOWD PROCESS PUMPS

**WATER-COOLED BEARINGS** — Dual wall construction of bearing housings provides a water cooling chamber area, keeping all bearings cool when pumping high temperature liquids. Bearings are individually enclosed in a cartridge type housing, assuring positive and permanent alignment.

**WATER-COOLED STUFFING BOX** — A water-cooled chamber surrounds the eight rows of packing in the deep, long stuffing box. Provides extra protection when pumping high temperature liquids.

**NEW IMPELLER AND CASE DESIGN** — Ample impeller clearance is provided in this new pump design to efficiently and effectively handle any liquids that may contain crystals, grit, abrasives and sludges.

**EXCEPTIONALLY HIGH HYDRAULIC EFFICIENCY** — The inherent design characteristics of these single-stage, single-suction type pumps account for their exceptionally high operating efficiency. They provide reliable operation at low maintenance cost. Available with either enclosed or open impeller.

**CRITICAL METALS MINIMIZED** — Only the casing, two side plates and the impeller comprise the pump-end. Saves critical metals and lowers cost of corrosion-resistant construction.

**FREE CATALOG** — Write on your business letterhead for interesting FREE Catalog. Address: DAYTON-DOWD COMPANY, Quincy, Illinois.

**DAYTON-DOWD**

COMPANY  
QUINCY, ILLINOIS  
Offices in Principal Cities

CENTRIFUGAL AND TURBINE PUMPS

When inquiring specify CP A847 — see information request blank, pgs. 2-3

Page 66

## PRODUCTION

### Dial Selector Makes Glove Recommendations

A selection guide for determining the proper glove for specific operating requirements is now available in the convenient form of a dial selector which indicates recommendations of gloves of natural or synthetic rubbers. This circular selector is printed on sturdy cardboard and has a radius of seven inches. Thirty-two common industrial conditions, such as snag resistance, gas diffusion, fats, oil, alcohol, ketones, acid, abrasions, sunlight etc. are printed on the perimeter of the larger of two dials forming the selector. When the particular condition about which information is desired is turned to the proper spot indicated by arrows the answer is shown in a small cut-out section of the smaller superimposed dial. The selections are made wholly on the considered suitability of the natural or synthetic product for the particular service in question. A limited quantity of these selectors is still available.

SURETY RUBBER CO., Dept. CP, Carrollton, Ohio.

When inquiring specify CP A848 — see information request blank, pgs. 2-3

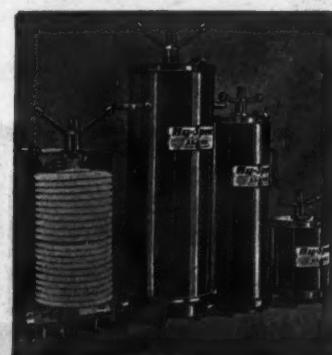
### Conveyor Equipment

Conveyor equipment including trolley wheels, an unusually complete line of trolleys covering a wide range of service requirements, wheels and brackets, automatic lubricators, troughing and belt conveyor rolls are described in catalog number 140 sent on request.

SAGINAW STAMPING & TOOL CO., Dept. CP, Saginaw, Mich.

When inquiring specify CP A849 — see information request blank, pgs. 2-3

## Alsop PAK-FILTER



PAK-FILTERS  
showing  
PAK unit.

### IS DOING A REMARKABLE JOB WITH ALL OILS

Filtering Oils has been a difficult and not too successful job under the different conditions and kinds of oils used.

The DISC-PAK filter has definitely proven very successful in removing dirt, moisture, sludge, sediments and other impurities found in DIESEL, TRANSFORMER, HYDRAULIC, FUEL and all types of MACHINE OILS and COOLANTS.

These are but a few of the oils. It equally cleanses other types of oils used in processing.

These filters can be supplied for various capacities for any degree of filtration desired in Portable, Stand type, Top and Bottom mounted for pipe line connection.

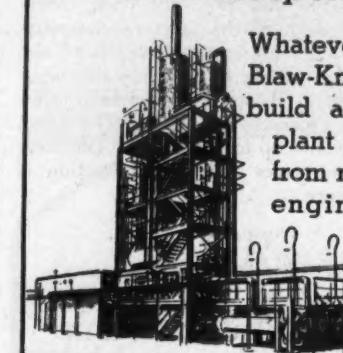
Our new book on Oil filtration will be sent on request. Worth studying for your possible needs.

**ALSOP ENGINEERING CORP.**  
18 Alsop Square Milldale, Conn.

When inquiring specify CP A850 — see information request blank, pgs. 2-3

## PROCESS PLANTS

from idea to Operation  
One Responsibility



Whatever your process—  
Blaw-Knox is ready to  
build a complete new  
plant or an addition  
from research through  
engineering, fabri-  
cation and  
construction,  
to initial  
operation.

Complete plants or equipment for the following processes ...

Distillation  
Gas Absorption  
Solvent Extraction  
Solvent Recovery  
Heat Transfer  
Furnacing  
Cracking

Kilning and  
Calcining  
Polymerizing  
Evaporation  
Crystallization  
Drying  
Mixing and Stirring

Organic Synthesis  
Emulsification  
High Pressure  
Processing  
Impregnating  
Gas Cleaning  
and others

### BLAW-KNOX DIVISION OF BLAW-KNOX CO.

FARMERS BANK BLDG., PITTSBURGH, PA.  
Offices in Principal Cities

When inquiring specify CP A851 — see information request blank, pgs. 2-3

## The HOEPNER Sewing Head by Consolidated



A Heavy Duty, High Speed

Sewing Head for fast, dependable operation.  
Standard equipment on Consolidated baggers.  
Available for installation on other  
makes of equipment also.

**CONSOLIDATED**  
PACKAGING MACHINERY CORP.  
1400 WEST AVENUE  
BUFFALO, N.Y.

When inquiring specify CP A852 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## READY-TO-ROLL EQUIPMENT

**IN STOCK** — for immediate delivery

- 1—Dings Magnetic Separator
- Stainless Steel Tanks, 100 gal. to 2000 gal.
- 2—Glass Lined Jacketed Tanks 750 gal. one with agitating Brine Coil.
- 1—Devine Horizontal Vacuum Dryer or Fumigator; 6' x 15', complete. I Devine Rot. Vac. Dryer 5' x 30'.
- 2—Rotex Sifters; 40" x 84" and 54" x 120".
- 1—Glass Lined Sectional Vacuum Still, about 3,000 gal.
- 1—Buffalo Heavy Duty Cast Iron Jacketed and Agitated Kettle, 1,500 gal.
- 7—Cast Steel Closed Vacuum Stills; 1,000 gal. Jacketed and Agitated.
- 7—Heavy Copper Tanks, 1,000 gal. Vertical, closed with manhole.
- FILTER PRESSES; Shriver 36" cast iron; 1—Shriver 42"; 1 Sperry 30" Wood Pl. & Fr. closed Del. Filter Press.
- 1—Swenson 6' Evaporator; 400 sq. ft. heating surface.
- 1—Sweetland No. 9 Filter, with 24 leaves.
- 10—Oliver Vertical Pressure Filters for Chemicals.
- 4—Colloid Mills and Homogenizers; Premier, Eppenbach, Manton Gaulin.
- 1—Mikro No. 4—24" Pulverizer with 75 H.P. Motor.

NOW is the time for all good processors to release idle or surplus equipment for unoccupied plant space.

**THE FIRST MACHINERY CO.**

EAST RIVER DRIVE & EAST 9th STREET, NEW YORK

When inquiring specify CP A353 — see information request blank, pgs. 2-3

## BUSCHMAN PORTABLE CONVEYOR

loads and unloads boxes, crates, cartons, and other packages, by gravity, to and from production lines, storerooms, trucks, box-cars, loading platforms, ships.

In 10-foot straight and curved sections. Quickly, easily changed from one location or application to another. No tools required for coupling sections or adjusting height. In stock for immediate delivery. Write for Bulletin No. 8, showing applications.

**The E.W. Buschman Co., Inc.**  
413 New St., Cincinnati 2, Ohio



When inquiring specify CP A354 — see information request blank, pgs. 2-3

## PRODUCTION



REMOVING TRAY of preforms

### Automatic High Frequency Unit for Preheating of Plastic Preforms

Operates at frequency of 25-30 megacycles; has output in excess of 3400 BTUs per hr.

**Uses** — To meet requirements for automatic high frequency equipment for preheating of plastic preforms.

**Features** — Completely automatic; in operating it is necessary to plug-in unit and load and unload the preform drawer. Closing the preform drawer turns on the high frequency power and timer.

**Description** — At the end of the prescribed time, which may be anywhere from 5 to 10 seconds up to 2 minutes, a red indicating light goes out, the operator removes the tray and unloads the preforms into mold cavities. Unit operates at a frequency of 25 to 30 megacycles. Using 230 volt, 60 cycle, single phase current this model has an output in excess of 3400 BTUs per hour. It measures 28 inches by 28 inches and stands 47 inches high. Weighs 614 pounds. Built-in heating cabinet and removable 12 inch by 15 inch drawer electrode. Complete information regarding Number 2 Thermex on request.

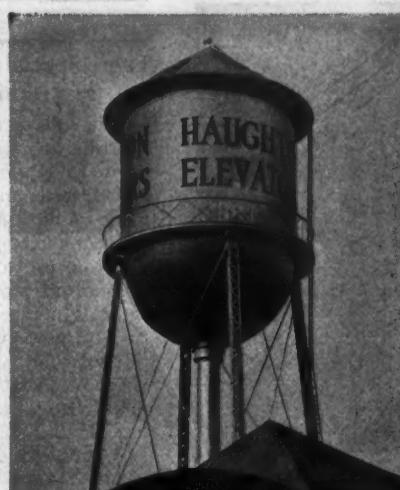
**GIRDLER CORP.**, (Thermex Div.)  
Dept. CP, 224 E. Broadway, Louisville, Ky.

When inquiring specify CP A355  
— see information request blank, pgs. 2-3

### Stock Labels and Ideas for Their Effective Use

A thirty-two page catalog printed in color presents a wide range of labels and stresses unusual applications and means of economies and labor saving ideas. Included is a distinctive addressing label set-up and a signal system idea employing die-cut label shapes, a "symbol of fragility," and "double vision" arrow caution labels. Copy available on request. **EVERY READY LABEL CORP.**, Dept. CP, 141 E. 41st St., New York 10, N. Y.

When inquiring specify CP A356  
— see information request blank, pgs. 2-3



### GIVES LASTING PROTECTION AGAINST RUSTING—FOR THE COST OF JUST ONE GOOD PAINT JOB

• Your steel tanks, too, can get lasting protection against rusting with Rusta Restor. Not a "Magic" — but the proven cathodic (i.e. electrical) thoroughly scientific method, Rusta Restor maintains the tank in an "electro-negative" or "neutralized" state, which not only prevents rusting, but gradually removes the effect of any earlier rusting. Rusta Restor is modest in first cost—and cheap to operate. It uses only the current required by one light bulb, and at low, safe voltages. Each installation is engineered to the individual tank and water conditions, using proven mathematical formulas, developed and used only by our engineers. Detailed description of interest to operating and maintenance men — and list of typical users — sent on request. Write today.

How it works —  
Explained in this  
folder — Send for  
one to-day!



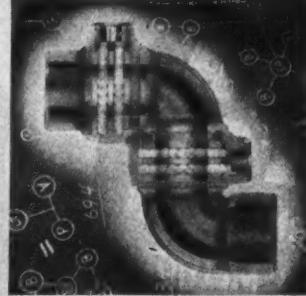
**RUSTA RESTOR**  
THE PROVEN CATHODIC (I.E. ELECTRICAL) RUST PREVENTIVE  
A DIVISION OF  
**THE JOHNSTON AND JENNINGS CO.**  
855 Addison Road • • • Cleveland 14, Ohio

OCECO VAPOR CONSERVATION AND FIRE PREVENTION EQUIPMENT FOR VOLATILE LIQUID STORAGE TANKS STOWE STOKERS HAMMERED FORGINGS

When inquiring specify CP A357 — see information request blank, pgs. 2-3



## CHIKSAN FORMULA FOR A *Perfect* SWIVEL JOINT



$$BB_2 + EP = \frac{LT}{P/V}$$

**BB<sub>2</sub>** = Double rows of Ball Bearings — For easy turning with minimum friction. They also maintain perfect alignment of moving parts.

**EP** = Effective Pack-Off — This self-adjusting unit permits the use of the same Swivel Joint for all services. Nothing to tighten or adjust.

**LT** = Low Torque — No excessive friction drag because turning takes place on ball bearings which hold moving members together. Tightness of Joint does not depend upon compressing packing element by means of bolted flanges, thereby causing joint to stick.

**P/V** = Pressure or Vacuum — Pre-determined pressure on Packing Ring prevents leaks due to pressure or vacuum. Packing automatically adjusts itself to either service.

These are the essential elements for perfect swivel action. You get ALL of them when you specify Chiksan Ball-Bearing Swivel Joints.

WRITE FOR CATALOG AND ENGINEERING DATA

**CHIKSAN TOOL COMPANY**  
Ball Bearing SWIVEL JOINTS  
for ALL PURPOSES  
BREA, CALIFORNIA

CHIKSAN  
TRADE MARK REG.

When inquiring specify CP A358 — see information request blank, pgs. 2-3

Page 68

## PRODUCTION

### Five Special V-Belts Meet Specific Types of Protection and Operating Requirements

V-belts, sheaves and drives included in a most complete selection of v-belt drive equipment featuring extremely accurate calibration are all described in tabloid style bulletin. Five special kinds of v-belts are reviewed: a standard belt made of Buna S which can operate easily at 180 degrees F. ambient temperatures; an oil resisting belt with standard belt core protected by a Neoprene rubber synthetic covering; an oil proof belt made of solid Neoprene and static resisting number conducting charges through its cover section to motor or machine. Steel belt, newest addition to this selection is built particularly to withstand high speeds with considerable less stretch than conventional belts. A quick-change sheave and the four speed changing methods used in this maker's sheaves are also described. Bulletin B6331 on request.

ALLIS-CHALMERS MFG. CO., Dept. CP, Milwaukee 1, Wis.

When inquiring specify CP A359 — see information request blank, pgs. 2-3

### Chart Lists Occupational Skin Diseases and Measures and Aids for Preventing Them

An authoritative wall chart on occupational diseases of the skin, size 34 x 22 1/2 ins. includes data relating to dye making, metal working, leather, soap, textile, rubber, paint and many other processing industries. The various hazards that may prevail in each of these many divisions of the food industry are listed and suggestion for proper precautions in the way of gloves, arm bands, etc. are given. Approved treatments are also listed. A chart is available on request to those desiring one.

PIONEER RUBBER CO., Dept. CP, Willard, Ohio.

When inquiring specify CP A360 — see information request blank, pgs. 2-3



## NEW BOOKLET . . . on Safe mixing

★ Send for new 24-page booklet showing PNEUMIX agitators in actual use in a wide range of industries. Run by compressed air, they are safe with flammable mixtures, have variable speeds, are more portable. By the makers of ECLIPSE manual and automatic spray equipment.

ECLIPSE AIR BRUSH CO.,

393 Park Ave.,

Newark 7, N. J.



When inquiring specify CP A362 — see information request blank, pgs. 2-3

## Weld-Bilt Spring Bearing Trucks

"SHOCK-CUSHION" YOUR  
PRODUCT AGAINST  
DAMAGE!



You save time, labor, men, floors and product damage when you put WELD-BILT SPRING BEARING TRUCKS on every handling job. Unique SPRING BEARING axle absorbs all floor shocks and wheel vibrations — for easier, faster trucking, longer truck life.

WRITE FOR BULLETINS NOW — on Weld-Bilt SPRING BEARING Platform and Two-Wheel Trucks

## WEST BEND EQUIPMENT CORP.

226 WATER STREET, WEST BEND, WISCONSIN

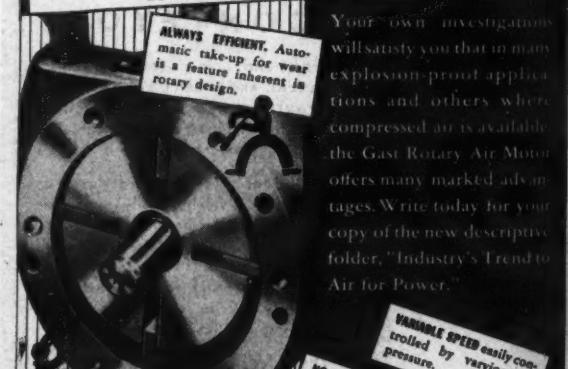
MATERIALS HANDLING ENGINEERS

Hydraulic Lift Trucks, Two and Four-Wheel Trucks, Towing Machinery, Skid Platforms, Barrel Trucks and Racks, Portable Elevators and Special Equipment.

When inquiring specify CP A361 — see information request blank, pgs. 2-3

## LOOK INTO GAST ROTARY AIR MOTORS

ALWAYS EFFICIENT. Automatic take-up for wear is a feature inherent in rotary design.



YOUR OWN INVESTIGATIONS will satisfy you that in many explosion-proof applications and others where compressed air is available, the Gast Rotary Air Motor offers many marked advantages. Write today for your copy of the new descriptive folder, "Industry's Trend to Air for Power."

VARIABLE SPEED easily controlled by varying air pressure.

NO SPARKS, therefore explosion-proof. Meets all safety requirements.

CANT BURN OUT by overloading — no matter how frequently or suddenly it is stopped.

AVAILABLE. Low in cost, good delivery on essential industrial applications.

COMPACT. Unbelievable power in proportion to small size.

GAST AIR  
ROTARY AIR  
MOTORS • COMPRESSORS  
VACUUM PUMPS

GAST MFG. CORP., 101 HINKLEY STREET, BENTON HARBOR, MICHIGAN

When inquiring specify CP A363 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

### Eyes Show Fire-Box Flame Clearly

Accurately viewed from any point within boiler room



EYE attaches to peep holes

**Uses** — Permits operator to see at a glance the furnace flame, its turbulence and its smoke haze and make necessary adjustments in fuel-air ratio without leaving his station. This applies to one or a number of boilers.

**Features** — Shadows of the smoke haze, and the flame characteristics in the firebox can be seen from any point in boiler room. Safe, no glare, does not get hot and will not permit flareback.

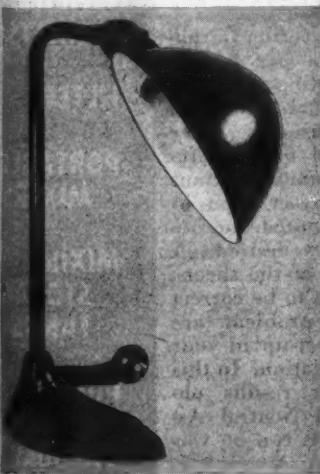
**Description** — The center of the "eye" is clear to show the flame in all its natural color and the outer frosted portion is a sensitive shadowscreen reflecting the slightest change in combustion. Easily attached to burners or peep holes; no adjustments, no charts, no electrical hook-ups. It is easy to hold "Orange Glow" with shadow flickerings which reflect optimum combustion efficiency. Three models — with external lugs; with internal lugs; threaded for pipe extensions. Information on "Cat's Eye" on request.

ESS INSTRUMENT CO., Fort Lee, N. J.

When inquiring specify CP A364 — see information request blank, pgs. 2-3

### Adjustable Inspection Lights

In either 9 or 12 inch arm models; choice of brown or gray finish and three types of shades



INSPECTION LIGHT universally adjustable

**Uses** — As light for fine inspection work, providing universal adjustment for worker comfort and maximum efficiency in direction and distribution of light.

**Features** — This type of unit rotates horizontally and adjusts 180 degrees vertically. Requires no wing nuts or set screws for adjustment, as inside spring construction of shell holds light in place in any position. The base has three wood screw holes permitting the

entire unit to be "pinned up" if desired.

**Description** — Lamps are mounted on a two-pound base and are available in models with either nine or twelve inch arms in brown or gray and with a choice of three different types of shades. This series of lamps as well as other similar units are described and illustrated in Catalog Number 106 which is available upon request.

RELIANCE DEVICES CO., INC., Dept. CP, 30 Irving Place, New York 3, N. Y.

When inquiring specify CP A305 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

# VACUUM -with vapors that bite!



### ELLIOTT Steam Jet EJECTORS

can meet practically any process need for low absolute pressures in small or large capacity. Write for the bulletin.



0-388

EXTREMELY CORROSIVE VAPORS such as hydrochloric, or hot sulphuric acid, are being successfully handled by Elliott ejectors in which the nozzle, nozzle-plate and diffuser are machined to exact dimensions from solid pieces of special treated graphite. This material is quite resistant to the corrosion of most acid and salt solutions, at the same time holding steam flow erosion to minimum proportions. These special ejectors are made only in single-stage and noncondensing two-stage types. (The two-stage unit is illustrated above.)

When you need to pull vacuum under any conditions, even those which rule out usual corrosion-resisting materials, use the experienced cooperation of Elliott engineers.

# ELLIOTT Company

HEAT TRANSFER DEPARTMENT, JEANNETTE, PA.

DISTRICT OFFICES IN PRINCIPAL CITIES

When inquiring specify CP A366 . . . see information request blank, pgs. 2-3

## use CHROMALOX ELECTRIC HEATING UNITS

### MELTING HEAVY GREASE, WAX, LARD

Remove cover of drum.

Place Chromalox BLC-2 immersion heater on top of congealed substance.

Heater will melt its way down through the substance, quickly liquefying entire contents of drum.

Use 55 percent of listed wattage rating to avoid all chance of overheating the material.

Unit being portable may be used on a number of drums successively.



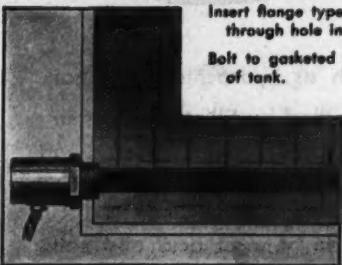
### THINNING HEAVY OIL

Insert flange type Chromalox immersion heater through hole in side of tank near outlet.

Bolt to gasketed companion flange on outside of tank.

Or, weld circular tapped boss to outside of tank and use immersion heater of screw plug type.

Heaters for this purpose have watt density of 16 to 18 watts per square inch, to avoid charring or overheating.



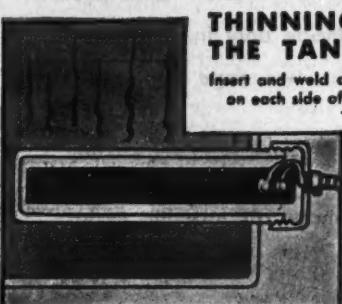
### THINNING ASPHALT AT THE TANK OUTLET

Insert and weld a capped section of 4-in. pipe on each side of tank outlet.

Mount Chromalox strip heater in each pipe, with clearance between heater and pipe wall.

Screw cap on outside end of pipe section, drilled to admit lead-in wires.

This arrangement gives even, controlled heat, with no danger of charring asphalt.



There are many other ways to meet the problems above with electric heat. If you have a specific heating job, call on the expert aid of our engineers. A rough pencil sketch facilitates matters. Chromalox catalog mailed at your request.

**EDWIN L. WIEGAND COMPANY**  
7517 Thomas Blvd., PITTSBURGH 8, PA.

When inquiring specify CP A367 — see information request blank, pgs. 2-3

Page 70

## PRODUCTION

### Fifth Edition of Manual of A.S.T.M. Standards on Refractory Materials

The latest Manual of A.S.T.M. Standards on Refractory Materials with other pertinent information and data is the fifth sponsored by A.S.T.M. Committee C-8 on Refractories. It includes new standards for air setting refractory mortars, fire-clay plastic refractories both for boiler and incinerator services, methods of test for measuring the shrinkage, spalling, and workability index of fire-clay plastic refractories, and a method for measuring the thermal conductivity of insulating fire brick.

Seven specifications on refractories for various types of service are given in the book. There are two classifications of materials and the remaining 16 standards give widely used methods of testing, some specifically for fireclay refractory brick, others for fireclay plastic refractories, some for insulating fire brick and others for various types of refractory materials. The latter includes tests to determine P.C.E., permanent linear change, cold crushing strength, warpage, porosity, true specific gravity. An important part of the book is a group of industrial surveys which are a most important contribution to the literature in this field. These surveys describe the operations carried out in the furnaces, the type of refractories used in them, and outline the conditions which affect the life of the refractories. A list follows: Open-Hearth Practice; Electric Furnaces Used in Steel Manufacture; Malleable Iron Industry; Copper Industry; Lead Industry; By-Product Coke Ovens; Lime Burning Industry; Glass Industry; Portland Cement Industry; Stationary Steam Boilers.

Other data in the manual cover standard samples of re-

## WARM THOSE HARD-TO-HEAT SPOTS

WITH G-E  
FORCED-  
CONVECTION  
HEATERS

One of the  
popular G-E  
midget heaters

Use them to heat drafty corners, tool rooms, guard houses, and other hard-to-heat locations. Just connect them to the nearest outlet, snap the switch and direct the warm, clean air wherever it is needed. These handy electric heaters are available in portable and suspension models. Ratings, 2 to 15 kw. Highly efficient, unusually durable.

PRICES FROM \$46.00

### SEND FOR GED-650

This catalog will give you the complete story on Calrod heaters and other G-E midget heaters; will help you select the midget heater best suited to your needs. *General Electric, Schenectady 5, N. Y.*

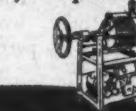
\*OTHER G-E HEATERS: CONVECTION HEATERS • IMMERSION HEATERS  
STRIP HEATERS • CARTRIDGE HEATERS • CALROD HEATERS • FIN CALROD HEATERS • HEATING CABLE

**GENERAL  ELECTRIC**

When inquiring specify CP A369 — see information request blank, pgs. 2-3

## Ertel maintains a Free Laboratory Service

The Ertel Engineering Corporation maintains a free laboratory service for testing and filtering all liquids sent for test and suggestions. Each sample, after thorough test and filter, is returned with recommendations regarding the correct type of filter sheet best suited for obtaining the results desired. A sufficient quantity of the sheets, determined by test to be correct for solving your problem, are sent for a single set-up in your filter without obligation. In this way the superior results obtained with Ertel Neutral Asbestos Filter Sheets can be verified in your plant.



**ERTEL**  
ENGINEERING CORP.  
KINGSTON NEW YORK

**NEW YORK OFFICE & SHOWROOM**  
Department B  
40 WEST 48th ST.  
NEW YORK, 19, N.Y.

When inquiring specify CP A370 — see information request blank, pgs. 2-3

**CHEMICAL PREVIEW**

**IRONBOUND**  
MATERIALS-HANDLING EQUIPMENT

When inquiring specify CP A368 — see information request blank, pgs. 2-3

ASBESTOS  
FILTER  
SHEETS

FILTERS

PORTABLE  
MIXERS

MIXING  
STORAGE  
TANKS

PUMPS

VACUUM  
BOTTLE  
FILLERS

CEN  
of t  
mou  
folle  
accu  
the c  
acces  
food  
"T"  
pacit  
AM  
Brak  
W  
Stic  
adher  
paper  
are d  
marki  
hand  
print  
in ha  
hand  
contin  
writer  
AVER  
13, Ca

## PRODUCTION

factory materials for chemical analysis, and for pyrometric cone equivalent.

This 210-page publication, which is particularly valuable to those who use refractories, can be obtained from A.S.T.M. Headquarters, 260 S. Board St., Phila. 2, Pa., at \$1.50, heavy paper cover; cloth, \$1.75. Reduced prices on quantities are in effect.

(Send all remittances to address below)

AMERICAN SOCIETY for TESTING MATERIALS, Dept. CP, 260 South Board Street, Philadelphia 2, Pa.

When inquiring specify CP A371 — see information request blank, pgs. 2-3

## Centrifugal Pumps with Overhead Motor Mounting Save Space

Two types, both horizontal; 3/4 inch to 12 inch pipesizes, capacities to 8000 gal.



CENTRIFUGAL PUMP motor overhead

of the horizontal type are now available with the motor mounted overhead as shown. This arrangement offers the following advantages. Pumps can be operated at more accurate speeds. Speed changes can be provided where the duty calls for such changes. Motor is stationed at more accessible point and at the same time is protected from flooding. The type "A" (5 inch illustrated) and type "T" offer this mounting. 3/4 to 12 inch pipe sizes, capacities to 8,000 gal., heads up to 200 feet.

AMERICAN MANGANESE STEEL DIV. (American Brake Shoe Co.), Chicago Heights, Ill.

When inquiring specify CP A372 — see information request blank, pgs. 2-3

## Removable Stickers for Parts Marking, Masking

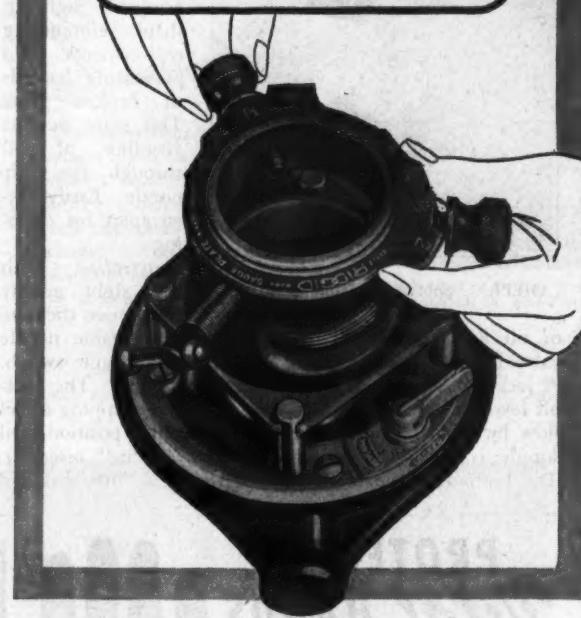
Stickers that may be easily attached without moistening, adhere firmly, permanently to metal, glass, plastic, wood, paper, withstand heat and cold and yet are easily removed are described in four page folder. Wide applications in marking and masking and other uses in industry. Parts handling simplified and made more accurate. Completely printed label or labels that are to be marked are offered in handy dispenser box. For quantity marking either by hand or machine labels are available mounted in rows on continuous carrying tape which can be fed through typewriter or duplicator.

AVERY ADHESIVES, Dept. CP, 451 E. 3rd St., Los Angeles 13, Cal.

When inquiring specify CP A373 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

Enjoy using this  
threader with  
fast mistake-proof  
workholder



## RIDGID No. 1R Poster, 1" to 2" pipe



Face View  
of No. 1R  
Die Stock.

• A popular-priced die stock with a popular workholder — it sets to pipe size quickly, correctly — no bushings! Threads smoothly — action is direct, handle to head to chasers; no cock-wobbling. Posts carry no load, only taper the threads, are separately replaceable. Rugged steel-and-malleable construction. Perfect threads on 1" to 2" pipe, alloy or high-speed steel dies. Ask your Supply House.

New RIDGID  
Pipe Reamer with  
Extra Long Taper



Reams burr only!

Reams easily!

Doesn't thin pipe wall!

No more reaming thin of threaded ends or splitting walls of pipe or conduit! Extra long-taper of this new RIDGID Reamer trims the burr out neatly and safely with easy feather-light ratcheted strokes — saves you time, effort and pipe. It's made complete with ratchet handle, or you may buy reamer alone for use in your RIDGID No. 00R threader handle. Capacity 1/8" to 2". You'll like this smart new work-saver tool — ask your Supply House. Immediate delivery!

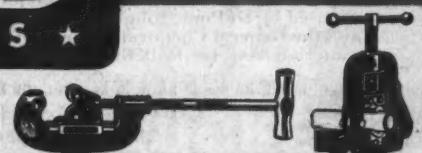
Sold by Supply Houses Everywhere



**RIDGID**  
PIPE TOOLS

THE RIDGE TOOL COMPANY  
Elyria, Ohio, U. S. A.

Millions of RIDGID Tools in use



When inquiring specify CP A374 . . . see information request blank, pgs. 2-3

THE BEST WOOD ROLL FOR  
DRY SERVICE EVER MADE...

"Shaf-tite" Roll No. 252

SHAFTS ARE ANCHORED  
WITH PATENTED  
"SHAF-TITE" HEADS

That's what customers say who have been using these "Shaf-tite" No. 252 LAMINATED Wood Rolls for years. Made of kiln-dried pieces, glued under heavy pressure. Shafts are "anchored" with patented "Shaf-tite" heads. Standard sizes — 4 to 10 inch diameter. Write for quotation.

RODNEY  
HUNT

"Shaf-tite" ROLLS

RODNEY HUNT MACHINE CO., 273 Maple St., Orange, Mass., U.S.A.

When inquiring specify CP A375 — see information request blank, pgs. 2-3

PAYLOADERS  
REPLACE  
MISSING  
MANPOWER



Why worry about the men who are not to be had? In many process plants, the manpower problem for handling bulk materials has been eliminated with Hough Payloaders. These compact, readily-maneuverable units speedily pick up their loads, hoist them and carry them to nearby or distant points and dump them into trucks, bins or pits. The Model "HA" Payloader, pictured, will load, carry 100' and dump at the rate of 25 tons or more per hour. Note how easily this unit goes in and out of box cars, where it is a great time saver. Numbers of Payloaders are used by DuPont, Johns-Manville, Virginia-Carolina and the General Chemical Company for handling bulk materials. Ask for Bulletin 149.

THE FRANK G. HOUGH CO.  
Libertyville, Illinois  
"Since 1920" 

HOUGH Payloader SHOVELS

When inquiring specify CP A376 — see information request blank, pgs. 2-3

Page 72

## PRODUCTION

### Sight Gravity Feed Oiler With Shut-Off, Needle Valve Adjustment

Made in range of sizes  $\frac{5}{8}$  oz. to 36 oz.



OILER . . . unbreakable sight in shank

of oil flow can be regulated with an adjustable needle valve by turning the knurled cap below the toggle switch. A lock nut securely retains the desired setting. The shut-off lever on top of the oiler allows positive stopping of oil flow by throwing the lever to a horizontal position. Oil supply is always visible through the "Lucite" reservoir. The bottom of the reservoir is designed so that dirt and

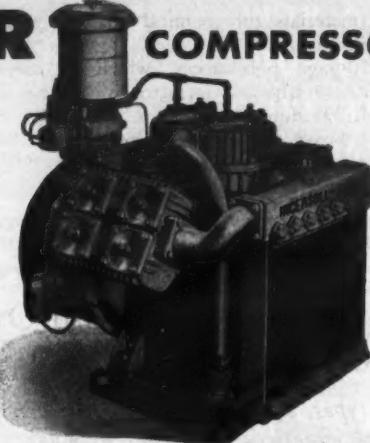
Uses — On turret lathes, screw machines, milling machines, machine tools, engines, conveyors.

Features — Unbreakable sight in shank eliminating replacements and preventing hazards of broken glass. This sight permits visibility of oil through the drip nozzle. Easily taken apart for cleaning.

Description — In this sight gravity feed oiler the rate

1-274

## AIR-COOLED AIR COMPRESSORS



Ingersoll-Rand air-cooled air compressors are compact, efficient units that may be easily installed without elaborate foundations. They are available in sizes from  $\frac{1}{2}$  to 90 horsepower. Piston displacements range from 1 to over 500 cu. ft. per minute. Pressures range from vacuum to 1000 lb. per sq. inch. Various types of mountings are available to suit the requirements of a particular installation. INGERSOLL-RAND COMPANY, 11 Broadway, New York, N.Y.

Ingersoll-Rand  
FOR COMPRESSED AIR

When inquiring specify CP A378 — see information request blank, pgs. 2-3

## PROTECT VITAL HANDS

PREPARE PRODUCTION LOSS  
DAMAGE CLAIMS • ABSENTEEISM

### All-Neoprene Latex INDUSTRIAL GLOVES

Impermeable to practically  
All Acids and Caustics  
Highly Resistant to Oils  
and Greases

#### 4 POPULAR STYLES

★ No. 5760-5, 18" LONG  
EXTRA LONG GAUNTLET  
GAUGE .030 TO .040  
SIZES 10, 11

★ No. 5737-2, 14" LONG  
LONG GAUNTLET  
GAUGE .030 TO .040  
SIZES 8-10-11-11 $\frac{1}{2}$ -12

★ Request samples and quotation on these extra-serviceable  
gloves available to you now for industrial purposes only.

Seiberling LATEX PRODUCTS CO.  
354 - 6th Ave., New York City  
AKRON 9, OHIO  
Merchandise Mart, Chicago

When inquiring specify CP A377 — see information request blank, pgs. 2-3



FLASHLIGHT  
DRY CELLS  
GETTING  
SCARCE!  
IDEAL RECHARGEABLE  
STORAGE BATTERIES  
for FLASHLIGHTS

Make sure of a future battery supply for your flashlights, with Unrestricted IDEAL Rechargeable Storage Batteries. They can be recharged again and again at convenient intervals, thus providing an "always fresh" battery, and a bright, steady, dependable light . . . Conserve Critical Materials.

#### Outlasts 400 Dry Cells!

With one IDEAL Rechargeable Storage Battery in heavy service, as much as \$10 a year can be saved on each flashlight. IDEAL Storage Batteries fit any standard size flashlight cases using 1 $\frac{3}{4}$ " size D dry cells. Many thousands in use in leading utility and industrial plants. Chargers for recharging the IDEAL Battery available in 1, 6 or 12-cell sizes.

Prompt Deliveries.

Write for Bulletin BB44

GUARANTEED  
IDEAL Sycamore  
★ IDEAL COMMUTATOR DRESSER CO. ★

5137 Park Ave.

Sycamore, Illinois  
Sales Offices in all Principal Cities

When inquiring specify CP A379 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

other foreign matter will have a tendency to settle on a surface lower than the oil intake port leading to the needle valve. Glass reservoirs and sights can be furnished. Gravity feed lubricators are available in nine sizes  $\frac{5}{8}$  oz. to 36 oz.

OIL-RITE CORP., Dept. CP, 3461 S. 13th St., Milwaukee 7, Wis.

When inquiring specify CP A380 — see information request blank, pgs. 2-3

### Composition, Reaction, Application of Various Prepared Atmospheres in Metal Treatment

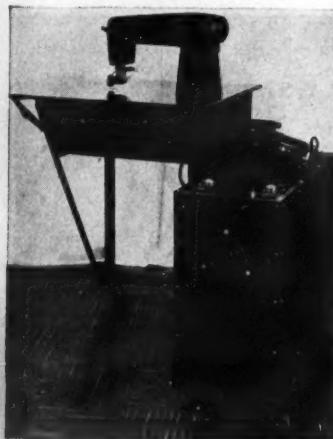
Applied gas chemistry with prepared atmospheres in heat treating furnaces is practically discussed in four page bulletin featuring numerous illustrations of furnace installations in plants treating alloy steels, small metals parts, castings etc. These brief case histories illustrate the use of radiant tube heating elements and prepared atmosphere generating units. Data on composition, reaction, application of various atmospheres is conveniently tabulated. Copies on request.

SURFACE COMBUSTION, Dept. CP, Toledo 1, Ohio.

When inquiring specify CP A381 — see information request blank, pgs. 2-3

### Electronic Welder For Bonding Thermoplastic Materials

Utilizes high frequency current to weld plastics and thermoplastic impregnated papers, textiles



Uses — For welding thermoplastics.

Description — A high frequency current is created between two electrodes in the form of rotating wheels or bars. As the material passes between these two electrodes and in the electronic field, the heat is inducted into the mass of material. Pressure may be introduced to degree desired to complete the weld while the materials to be welded are in the desired plastic

#### WELDS THERMOPLASTICS

state. The electrodes do not become heated but remain at room temperature. The bond is stated to be water-tight and air tight as the material itself. The fusion in no way injures the material, the weld becoming the strongest part of the finished product. No additional material is necessary. The unit can be used however to give decorative effects of contrasting colors or textures. (Illustration shows the complete electronic control and operating unit). The welder can be adopted as a step in the process of fabrication or can be incorporated into other machines. The equipment may be used on thermoplastic impregnated textiles and papers.

RICHARDSON-ALLEN CORP., Dept. CP, 15 W. 20th St., New York, N. Y.

When inquiring specify CP A382 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

# CARRIER CHAINS THAT KEEP PRODUCTION ON THE MOVE . . .



● For supporting, pushing, and moving a great variety of products, Link-Belt chains are made in a number of standard sizes and metals to suit conditions. Link-Belt chain engineers are at your service in connection with any conveyor or drive problem. Send for catalogs.



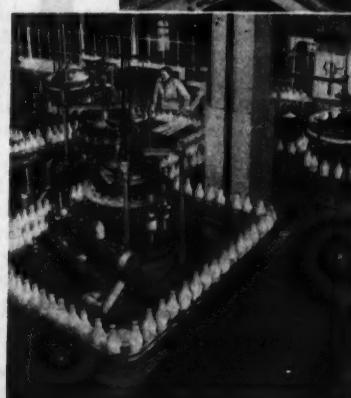
All types of bottles, jars and cans are handled on Flat-Top Conveyor Chains.

#### LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Toronto 8.  
Offices in principal cities.



Milk cases are conveyed to and from washing and filling operations and hurried to waiting delivery trucks on No. 4250 swivel chain.



Cases of beer are conveyed from packing machine to storage or direct to shipping department on two strands of No. 4250 swivel chain.



Conveyor equipped with Flat-Top chain carrying glass jars of peanut butter from filling machine to capper.

Modern Dairies — Modern Methods — bottles filled and capped while moving on Universal Carrier and Flat-Top Chains.

**LINK-BELT**  
CHAINS AND SPROCKETS



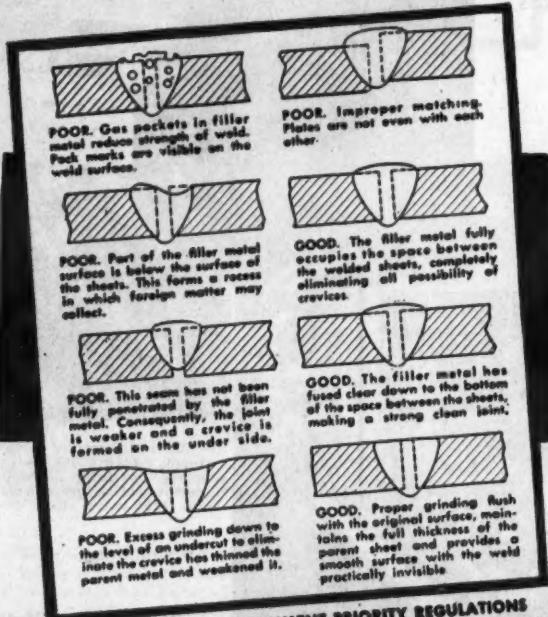
When inquiring specify CP A383 . . . see information request blank, pgs. 2-3

# How to CHECK WELDED SEAMS in Stainless Steel PROCESSING EQUIPMENT

Before "inducting" a new processing vessel into war work examine its joints and welded seams. For the life of your equipment depends on the soundness of the welds.

Improper welding can often be recognized with the naked eye. The diagrams below may guide engineers in detecting proper and improper welds.

The most practical way to eliminate the danger of improper welding is to select a fabricator having specialized experience in working with stainless steel. For years, S. Blickman, Inc., has devoted its large facilities mainly to the fabrication of stainless steel equipment in gauges up to  $\frac{3}{8}$ " thick. Our know-how assures you of processing equipment with welded seams that stand up under wartime production.



ALL ORDERS SUBJECT TO GOVERNMENT PRIORITY REGULATIONS

These diagrams appear as part of the Blickman brochure "What to Look for When you Specify Stainless Steel for Your Processing Equipment". Write for the brochure on your company stationery.

**S. BLICKMAN, INC.**  
1208 GREGORY AVE. WEEHAWKEN N.J.

REACTORS - CONDENSERS - AGITATORS - EVAPORATORS - PUMP - VACUUM UNITS

When inquiring specify CP A384 — see information request blank, pgs. 2-3

Page 74

## PRODUCTION

### Powder Extinguisher for Fires of Flammable Liquid, Electric Origin

Weighs 37 lbs. fully charged; harmless to workers and to delicate parts of machinery

**Uses** — For extinguishing both flammable liquids and fires of electrical origin.

**Description** — Extinguisher ejects a stream of dry chemical which, when activated by heat, forms a dense, fire-smothering cloud over a flaming area up to eighteen feet. The insulating qualities of the cloud help to guard against re-flash, and create a heat deflecting screen between the operator and the flame permitting close range attack with greater safety and no heat discomfort. The chemical, a non-conductor of electricity, is harmless to humans and delicate mechanisms.



EXTINGUISHER . . . range 18 feet

### THE 90%

### OPEN AREA

of

### HENDRICK

### MITCO

### Steel Flooring



### Gives Maximum Light and Ventilation

Because the openings in all types of Mitco Open Steel Flooring are rectangular in shape, and because Mitco construction uses no bolts, rivets, or acute angle joints to obstruct light and ventilation or to retain dirt and refuse, Mitco Open Steel Flooring provides and maintains maximum light and ventilation from level to level. Mitco Open Steel Flooring has 90% open area. Note the absence of shadows at the floor level.

### HENDRICK MANUFACTURING CO.

Carbondale, Penna.

30 Church Street, New York City

Sales Offices in Principal Cities

Also manufactures of Perforated Metal Screens, Perforated Metal Grilles, Light and Heavy Steel Plate Construction

When inquiring specify CP A385 — see information request blank, pga. 2-3

For PERMANENTLY SEALED Insulated Piping

—specify **RIC-WIL**  
PREFABRICATED INSULATED  
PIPE UNITS...

Insist on these  
**RIC-WIL** Features



Welded Lock Seam



Expanded Smooth Ends



Improved Drive Coupler

When you specify Ric-wil you are assured an insulated pipe system that is permanently weather-tight. Improved design incorporates exclusive engineering features, three of which are illustrated at the left. Ric-wil Prefabricated Insulated Pipe Units are factory tailored to job specifications. Minimum skilled labor is required to make field-closures of 21-foot sections. Installation—overhead or underground—can be completed in record time. Prefabricated elbows, tee branches, reducers, expansion loops, lead seals and other accessories are available—fitted with couplers for quick assembly with straight units. Each unit is factory pre-sealed, assuring dry insulation. Entire system can be dismantled and relocated without loss or damage.

Write for Bulletin 4404 giving detailed information on the improved Ric-wil Prefabricated Insulated Pipe Units, and their application to your piping projects.

**RIC-WIL** INSULATED PIPE CONDUIT SYSTEMS  
THE RIC-WIL COMPANY - CLEVELAND, OHIO

When inquiring specify CP A386 — see information request blank, pgs. 2-3

Here's the  
**RESPIRATOR**  
for Safety and  
Comfort in  
**PAINT**  
**SPRAYING!**



### M3C CHEMICAL RESPIRATOR

Sprayers can work safely and comfortably for long periods when wearing this efficient Pulmosan M3C Respirator. The chemical cartridge effectively filters and neutralizes mists and fumes of paints, enamels and lacquers. Extra large filtering area assures easy breathing. Aluminum body is very light and easily adjusted by wearer to a permanent Face Fit to any facial contour. Patented rubber face cushion, knitted cushion covers, flutter exhalation valve. Write for prices. Try them.

Types for **EVERY** hazard. Get literature.  
**Pulmosan Safety Equipment Corp.**  
176 Johnson St. • Brooklyn 1, N. Y.

When inquiring specify CP A387 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

anized parts of motors or machinery. The extinguisher weighs only thirty-seven pounds fully charged and is easily handled by men or women workers. It is fast in action and can be quickly recharged at scene of a fire without special recharging equipment. Both the extinguisher and the extinguishing agent have been tested and approved by recognizing laboratory on burning alcohol, oils and gasoline fires.

NATIONAL POWDER FIRE EXTINGUISHER CORP., Dept. CP, 50 Rockefeller Plaza, New York, N. Y.

When inquiring specify CP A388 — see information request blank, pgs. 2-3

### Centralized Industrial Lubrication

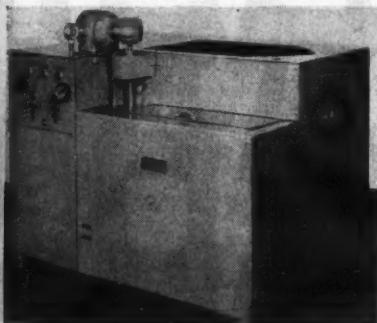
The Alemite Progressive Lubrication System — a method of high pressure grease lubrication providing the delivery of a predetermined quantity of lubricant to each of a number of bearings from one central point — is illustrated and described in four page two-color folder. Lubricant is introduced by any type of high pressure grease gun, power or manually operated. Systems available for from 3 to 20 bearings. Four sizes of pistons are available and any one of these sizes may be used on any one of the system outlets. Completion of lubricant cycle shown by indicator. A twenty-five pound power gun (electric), for operated air powered gun and a hand lever gun are illustrated and described. This progressive is one of four Alemite systems covering a complete range of requirements from a relatively small number of bearings to the servicing of an unlimited number from a central point for service of a large group of machines as provided in the Dual Manifold System.

STEWART-WARNER CORP. (Alemite Div.) Dept. CP, 1826 Diversey Pkwy., Chicago, Ill.

When inquiring specify CP A389 — see information request blank, pgs. 2-3

### Ethyl Cellulose Dipping Tank

*Incorporates unusually close controls to meet current requirements in vital production*



DIP TANKS handles 4500 sparkplugs per hr.

**Uses** — Ethyl Cellulose melting and dipping tank. Unit illustrated is used to dip spark plugs.

**Features** — Extremely close control and uniformity of temperature is achieved with remarkably low heating surface temperature.

**Description** — Indirect heat employed; thermostatic control is maintained over both the heat exchange medium and the plastic to insure that neither rises over the maximum allowable temperature. The plastic is so circulated that it has constant level in dipping tank and surface film that tends to form is continually removed as well as air bubbles which rise from the dipping of certain shapes. Units are complete with all controls. Range of units available to meet requirements.

YOUNGSTOWN-MILLER CO., Dept. CP, Sandusky, Ohio.

When inquiring specify CP A390 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

TRANSMISSIONEERED MEANS ADVANCED DESIGN IN POWER DRIVES



## Transmissioneered for 30,000 Hours of Trouble-Free Service

The Sign  
of the Dodge  
Transmissioneer

Rugged Rolling Bearings, Transmissioneered by Dodge for your particular power drive requirements, give you long hours of trouble-free service. Built to accept the challenge of modern peak-production methods — to defy the marauding forces that tear at production efficiency every hour of the working day — Dodge Transmissioneered Rolling Bearings hold your power and maintenance costs to a minimum. Transmissioneering assures you 30,000 hours of dependable performance under conditions for which the bearing is adapted.

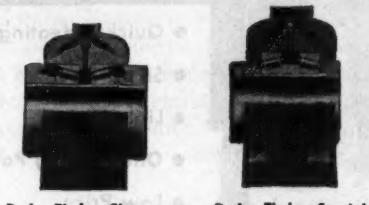
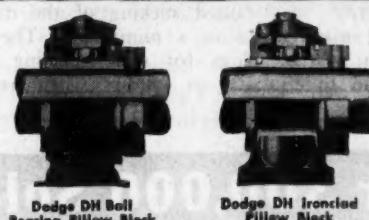
Dodge Transmissioneered power drive equipment — Bearings, Clutches, DV Drives, Pulleys and many other items — are obtainable generally from the stocks of the Dodge Transmissioneer, the Dodge Distributor in your area. He can supply you with "The Right Drive for Every Job" — assembled from standardized precision-made equipment that keeps *all* the power on the job. Call your Dodge Transmissioneer.

**DODGE MANUFACTURING CORPORATION**  
Mishawaka, Indiana, U. S. A.

BUY MORE  
WAR BONDS

Copyright 1944, Dodge Mfg. Corporation

No. 14



**DODGE ROLLING BEARINGS . . . The 30,000 Hour Line**

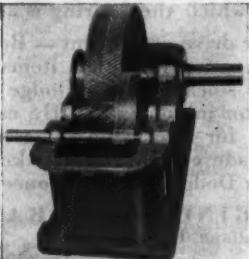
When inquiring specify CP A391 . . . see information request blank, pgs. 2-3

Page 75

# GEARS . . . INDUSTRY AND MEN

Since 1888 . . . The Men of the D. O. James Organization have been a component part of the great expansion of American industry . . . Since Pearl Harbor . . . D. O. James Gears and Gear Reducers have been important components of the guns, ships and aircraft of our armed forces . . . The experience derived from our pre-war and war-time activities will be an important asset to American industry when Victory comes . . . That the post-war Gear and Gear Reducer requirements of American industry will be capably handled by our organization is proven by the testimony of the continued performance of D. O. James Gears and Gear Reducers of every type for every industrial application.

TODAY . . . D. O. James Gears and Men are ready to serve American industry.



D. O. James Continuous-Tooth Herringbone Gear Reducers are available in 38 sizes with a ratio range of 2 to 350:1 and from .63 to 1230 horsepower. Made in single, double and triple reduction.

## D.O.James

ESTABLISHED 1888  
1140 WEST MONROE STREET - CHICAGO 7, ILL.

When inquiring specify CP A392 — see information request blank, pgs. 2-3

Page 76

## PRODUCTION

### Corrosion Resistant Globe-Type Valves in 1 and 2 Inch Sizes

An addition to complete selection of pipe, pumps, exchangers made of inert graphite material, equipped with adapter plugs for steam



GLOBE VALVE

**Uses** — In operations involving corrosive chemicals and where thermal shock is a factor.

**Description** — This globe-type valve is addition to maker's related products formed of chemical inert graphite material: tanks, heat exchangers, pipes, pumps, etc. Complete conveying and heat transfer systems may be constructed of units of this "Karbite" stock. The valves are available in one inch and two inch sizes. Tested to withstand fifty pounds pressure, they are small, lightweight, with short face to face dimensions. They are self-lubricating, the inert chemical properties of the material prevents corrosion-caused sticking of the moving

parts, keeping maintenance at a minimum. They are equipped with adaptor plugs for steam heating those fluids that tend to crystallize or solidify when handled

## We Are Doing Our BEST for UNCLE SAM

### We'll Do the Same for YOU

Our business is building pumps. Our ONLY policy is to build fine pumps. When you install pumps "by Aurora," you know that lasting efficiency and dependability are at work on your important liquids handling jobs.



Aurora Deep Well Turbines  
for all conditions—4" to 24"



Type AD Hor. Split Case, Two Stage Centrifugal



NSA Aurora Centrifugal Sump Pump



Type GMC Close-Coupled Centrifugal



Type GGU Side Suction Single Stage Centrifugal



APCO Single Stage Turbine-Type

Write for  
CONDENSED CATALOG  
OR



DISTRIBUTORS IN PRINCIPAL CITIES



AURORA



AURORA PUMP COMPANY

62 Loucks Street, AURORA, ILLINOIS

When inquiring specify CP A394 — see information request blank, pgs. 2-3

### Over 300,000 Sold



- Quicker Heating
- Small Size
- Light Weight
- One Moving Part
- Low Price

Sold by more  
than 100 Mill  
Supply Distribu-  
tors throughout  
the U.S.A.

See your supply house or write for Catalog T-1738.  
YARNALL-WARING CO., 125 Mermaid Ave., Phila. 18, Pa.

# YARWAY

## IMPULSE STEAM TRAP

When inquiring specify CP A393 — see information request blank, pgs. 2-3



CHAINS AND  
MATERIAL HANDLING  
EQUIPMENT...

Write for complete information.

The Jeffrey Manufacturing Company

853-99 North Fourth Street

Columbus, Ohio

Baltimore 1	Cincinnati 2	Huntington, W. Va. 19
Birmingham 3	Cleveland 13	Pittsburgh 22
Boston 16	Denver 2	Salt Lake City 1
Buffalo 2	Detroit 13	Harlan, Ky.
Chicago 1	Houston 5	Milwaukee 11
		Scranton, Pa. 3
		New York 7
		Philadelphia 3

Jeffrey Manufacturing Co., Ltd. of Canada, Head Office & Works: Montreal  
Branch Offices: Toronto, Calgary, Vancouver.

When inquiring specify CP A395 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

through unheated lines. Utilization of the adapter plugs for steam-heating will prevent clogging and shutdowns.

NATIONAL CARBON CO., INC., Dept. CP, 117th & Madison, Cleveland, Ohio.

When inquiring specify CP A396 — see information request blank, pgs. 2-3

### Pressure Filters With Individual Sight Glasses In Each Outlet Give Constant Visibility

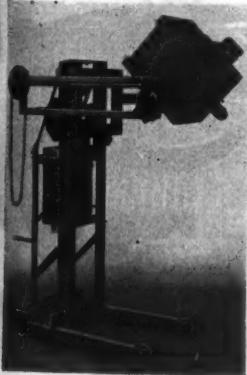
Pressure filters of high capacity and high washing efficiency, automatic discharge of filter cake and adaptable for use where filter aids are required are described in four page bulletin. The constant visibility of filtrate from each leaf, made possible by individual sight glasses in each outlet helps maintain high operating efficiency. This filter is essentially of the following parts: a split pressure shell with a hinged bottom, inside of which is suspended a series of circular filter leaves which drain through individual sight glass outlets into a common discharge manifold. The feed connection can be furnished at either end. Some units are equipped with automatic sludging mechanism. Filter cake is removed either with the bottom of the shell open or by sludging down through a bottom drain. Small units are open and closed by hand and large units use hydraulic hoist. Filter can be supplied completely fitted for corrosive service. Filters are designed for maximum operating pressures of 50 pounds. Available filter areas range from laboratory size to 1000 square feet. There are illustrations of the top and bottom drainage leaves, several typical assemblies and photos of actual installations. Typical operating cycles is described and general data is tabulated. Bulletin 111-R on request.

OLIVER UNITED FILTERS INC., Dept. CP, 33 W. 42nd St., New York 18, N. Y.

When inquiring specify CP A397 — see information request blank, pgs. 2-3

### Dispenser Performs Complete Job In Raising, Tilting Carboys

All operations under precision control at all times; larger unit for drums available



HANDLES CARBOYS SAFELY

moved again by the chain. After emptying, the carboy is returned to an upright position and gently lowered by the standard "Revolvator" dead man brake, ever which is the same handle used for elevating. A similar machine is also made for barrel and drum dumping.

REVOLVATOR CO., Dept. CP, North Bergen, N. J.

When inquiring specify CP A398 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

# How much does Pyrex Piping Cost?

How do you figure costs of new equipment? Do you consider it in terms of initial outlay or in terms of overall costs—spread over the length of service it will give you?

On both these counts PYREX Piping is your best bet. The initial cost of PYREX Piping (accessories included) is about the same or less than the cost of full weight copper or brass piping in comparable sizes, and is considerably less than the cost of stainless steel.

And—because PYREX Piping resists acid attack—because it is transparent and easy to clean—because of its mechanical strength, and its smooth, hard surface which resists pitting and scratching—it gives long trouble-free service. Maintenance costs can, for all practical purposes, be disregarded.

If you are conveying hot or corrosive liquids or gases—if you want to protect products from contamination—if it is important to you to know what is happening inside a line—use PYREX piping.

Approximate cost of glass pipe lines, including fittings, are shown in Table I. These figures should, of course, serve only as a rough guide. The exact amount should be calculated by adding up the cost of the individual parts. (See Page 9, Bulletin 814.)

Corning Engineers will be glad to work with you on your piping problems, to show you how PYREX Piping can be used in your processes efficiently and economically. Write Industrial Sales Dept., CP-9 Corning Glass Works, Corning, N. Y. for PYREX Piping literature or for help on your specific problems.

TABLE I

Size	Approx. cost per foot
1"	\$1.00
1 1/2"	1.75
2"	2.10
3"	3.25
4"	6.00

"PYREX" is a registered trademark and indicates manufacture by Corning Glass Works, Corning, New York.



Pyrex Industrial Glass

Corning Glass Works, Industrial Division, Dept. CP-9  
Corning, New York

Gentlemen:

I would like glass piping information immediately on the subject I have checked below. I understand there is no obligation.

Valves       Installation Manual  
 Pyrex Piping and Heat       (Bulletin 839)  
 Exchangers       Adaptors

Name.....

Firm.....

Street.....

City and State.....

When inquiring specify CP A399 . . . see information request blank, pgs. 2-3

CORROSION RESISTING

WEAR RESISTING

HEAT RESISTING

HIGH STRENGTH

*Solid Stainless  
Steels*

JESSOP

*Stainless-Clad  
Steels*

STAINLESS QUALITY

STAINLESS WEAR

LOWER COST

★ Consult Jessop's representatives regarding availability and type best suited for your particular application.

\*U. S. Patent Nos. 1,997,538 and 2,044,742

JESSOP STEEL CO.

HEAD OFFICE AND WORKS

WASHINGTON . . PENNA.

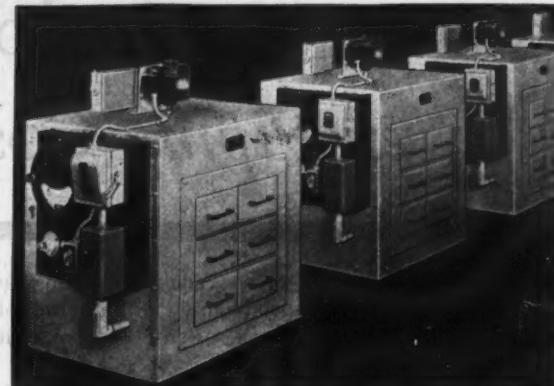


Established 1901

When inquiring specify CP A400 — see information request blank, pgs. 2-3

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PRODUCTION



OVENS FOR FINISH BAKING SMALL ITEMS

Drawer Style Ovens Convertible  
to Regular Shelf Type

For preheating bakelite prior to forming and  
for finish baking small items; heated air  
circulated on down draft principle

**Uses** — Specifically for preheating bakelite prior to forming it in distributor caps, may also be used for finish baking small items and can be converted to other uses.

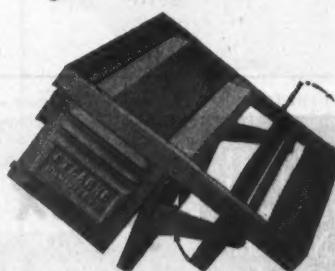
**Description** — With the exception of the front panels containing the drawers, the ovens were assembled from standard units. The drawer panels being the same overall size as regulation doors, if the nature of the work should change in the future, the ovens can be converted into the usual shelf type by merely substituting standard doors for front panels, and putting in shelves, supports for which are already in place. In the oven pictured, heated air is circulated on the down-draft principle, applicable when the work consists of quantities of small parts. As a further aid to free circulation and elimination of heat losses, drawers are constructed of expanded metal, and close against asbestos gaskets. Temperatures up to 500 degrees F. are under fully automatic control, and the ovens may be connected to exhaust piping if necessary.

KOCH INDUSTRIAL EQUIPMENT INC., Dept. CP, Evansville, Ind.

When inquiring specify CP A401 — see information request blank, pgs. 2-3

Quick Acting Spout Magnets For  
Protection Against Tramp Iron

In sizes 8-20 ins. for grain and similar materials;  
giant sizes for coal and other heavy industries



SPOUT MAGNET

**Features** — Quick positive acting armature insures opening and closing of

**Uses** — In milling, feed, grain and similar bulk material applications for elimination of tramp iron to protect crushers, grinders and other machinery as well as help purify product and contribute to worker safety.

**Features** — Quick



Made of high test cast iron, GRID Blast Sections have the same high efficiency and lasting qualities as GRID Unit Heaters . . . no tortuous air passages . . . no ruptures, strains, or warping . . . compact, they occupy less space . . . guaranteed for steam pressures up to 250 lbs.

There's nothing to become loose, to develop leaks, breakdowns or heating failures . . . no electrolysis to cause corrosion . . . atmospheric conditions cannot retard operation. Catalog and capacity tables upon request.

NO SOLDERED,  
BRAZED, WELDED  
OR EXPANDED  
CONNECTIONS

COOLING TOWERS  
Send us your re-  
quirements for cool-  
ing towers. Built to  
special requirements.

ONE  
PIECE  
CONSTRUCTION  
"FIN" SECTION

**GRID** D. J. MURRAY MANUFACTURING CO.  
WAUSAU WISCONSIN

When inquiring specify CP A402 — see information request blank, pgs. 2-3

Uniform Separation

FOOD PRODUCTS — CHEMICALS — METALLICS  
NON-METALLIC MINERALS

The new model GAYCO Centrifugal air separator makes possible the uniform and increased recovery of fine material within a range of 40 to 400 mesh.

- Greater Capacity
- Cleaner Trailings
- 99% Through 325 Mesh
- 25% to 30% greater recovery of fines
- Not affected by variation in speed or rate of feed.

The Gayco Separator  
Handles

SUCH PRODUCTS AS  
BAGASSE GROUND HAIR  
CASEIN GROUND OATS  
COCOA POWDER GUM ARABIC  
COTTONSEED MEAL SOY FLOUR  
FERTILIZER SPICES  
SUGAR



Universal Road Machinery Co.

RUBERT M. GAY DIVISION 117 Liberty St. New York 6, N. Y.  
Canadian Representative: F. H. Hopkins & Co., Ltd., Montreal

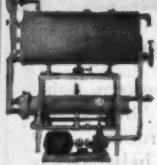
FACTORY & LABORATORY, KINGSTON, N. Y.

When inquiring specify CP A403 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

"In Answer to Your Ad—"

Second hand  
B.T.U.'s to do extra  
work in boiler that  
can't be enlarged.



### SCHAUB HEAT Reclaim SYSTEM

GIVES GREATER CAPACITY WITH  
THE SAME BOILER—THE SAME FUEL

There's only one answer to this ad—the Schaub Heat Reclaim System which returns your left-over BTU's to the boiler for re-use! The result is more steam with the same amount of fuel and the same boiler you are now using. Liberalized priority regulations make it easy to secure a Schaub Heat Reclaim System. Write today for full information.

#### Schaub DRAINTROL

provides for continuous discharge of all air and condensation as it forms—resulting in better heated machines.

FRED H. SCHAUB ENGINEERING CO., INC.  
327 West Huron St., Chicago 10, Illinois

The Key to Boiler Room Efficiency

### SCHAUB SYSTEMS

When inquiring specify CP A404—see information request blank, pgs. 2-3

## BARREL TRUCK Loads Automatically

Barrels weighing up to 1,000 lbs. handled with ease . . . truck weighs but 85 lbs. To load, shove truck up against barrel or drum, then drop sliding steel catch over rim . . . pull toward you and truck loads automatically—loads from row as easily as when barrel stands alone.

Sturdily constructed of heavy steel. 10" steel wheels. Greatest width only 22", permitting it to pass through narrow aisles and doors.

Sliding catch grips until released by operator; note long hook for bilge type barrel.

\$3350

f.o.b. Detroit  
Subject to  
change  
without  
notice

Item S-911

To avoid  
error, order  
by item number.

Palmer Shile Co.

7128 West Jefferson Ave., DETROIT 17, MICHIGAN

When inquiring specify CP A405—see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## PRODUCTION

tramp iron discharge gate which is entirely automatic, opening when current is shut off and closing when current is turned on; simple design gate lever arm; clean tramp iron discharge gate prevents dirt collecting and hindering efficient operation; stronger magnet; enlarged bronze bearings on gate actuating rods make wearing parts more easily accessible; tramp iron wells to provide high intensity, double pass magnetic action on material and louvre type non-magnetic side plates to allow ample ventilation to cool coils but keep out injurious particles.

**Description** — Furnished in widths from eight inches to twenty inches and can be had in larger sizes for coal and other industries requiring giant types. When direct current is not available rectifiers are furnished on request to suit size of spout magnet selected.

STEARNS MAGNETIC MFG. CO., Dept. CP, Milwaukee, Wis.

When inquiring specify CP A406—see information request blank, pgs. 2-3

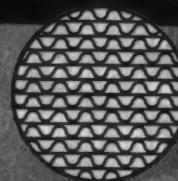
### Condensed Technical Data on Amines

Booklet on "Amines" condenses important information of 25 members of this particular group of organic chemicals that are available in commercial quantities. It gives names, formulas, applications, etc., and uses of each chemical of the family. Graphical data includes freezing points, viscosities and similar information. Of interest to producers of emulsifiers for polishes, cosmetics, insecticides, dyes and pharmaceuticals. Form 4770 on request.

CARBIDE & CARBON CO., Dept. CP, 30 E. 42nd St., New York 17, N. Y.

When inquiring specify CP A407—see information request blank, pgs. 2-3

Oceco Flame Arrestor Element photographed against the light showing the absence of obstruction—and easy inspection.



Above,—section of Oceco Flame Arrestor Element—actual size—and at the left, the rigid semi-steel housing, with "element" partially removed.

## OCECO Flame Arrestors with their Vertical Straight Through Passages

- 1 **Positively prevent flame passage**
- 2 **Permit free tank venting**
- 3 **Minimize entrainment of condensates**
- 4 **Assure easy quick inspection**

As thousands of users know, Oceco Flame Arrestors give real protection for tanks storing volatile liquids. The corrosion resisting "bank" or "element" assembled from flat and corrugated sheets of aluminum, arranged alternately to form vertical straight through passages is an absolute flame stop, — yet assures free tank breathing with minimum pressure drop. The entire absence of screens and tortuous channels minimizes entrainment of condensation and clogging, avoiding tank "cave-ins" and "blow-outs", — and permits easy inspection simply by looking through. Rigid gas-tight semi-steel housings of Oceco Vent Units provide maximum protection against the heat of nearby fires, not afforded when housings of lower melting point material are used.

Our recently completed Catalog No. V-50 gives complete details. . . . Send for a copy today!

OCECO BUCKETS  
Popular in the  
Chemical  
Industry

OCECO VENT UNITS  
Cleveland, Ohio  
Engineering and Sales Representatives in the Principal Cities

A MOUTHFUL AT EVERY BITE

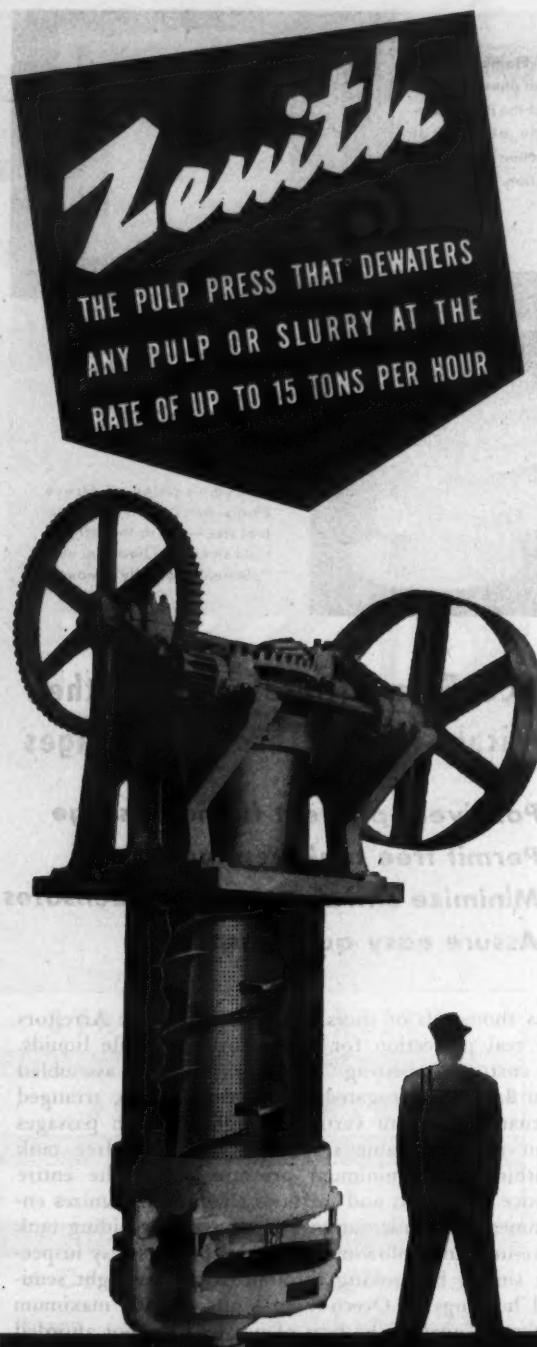
When inquiring specify CP A408—see information request blank, pgs. 2-3

# OCECO

Division of  
THE JOHNSTON & JENNINGS COMPANY  
368 Addison Road  
Cleveland, Ohio  
Engineering and Sales Representatives in the Principal Cities

FIRE PREVENTION AND VAPOR CONSERVATION EQUIPMENT  
FOR VOLATILE LIQUID STORAGE TANKS

When inquiring specify CP A409—see information request blank, pgs. 2-3



If your manufacturing process requires the dewatering of any crystalline, granular or fibrous slurries, you will want to know more about the giant Zenith Pulp Press. This continuous press dewateres up to fifteen tons of pulp in one hour. Pressure is transmitted (see cut away view) by means of a slowly revolving spiral-bladed spindle. Because of its built-in heating system and design of its walls, draining is doubly efficient. For complete facts write today to:

JACKSON & CHURCH CO., SAGINAW, MICHIGAN

When inquiring specify CP A410 — see information request blank, pgs. 2-3

Page 80

## PRODUCTION

### Utility Adjustable Hole Cutters

For wood, steel, brass, rubber, fiber; two models cover range of 3/8 - 2 1/2 diameters

**Uses** — Cutting clean holes in sheet metals, wood or plastics in all diameters from 5/8 to 2 1/2 inches.

**Description** — Two sizes are available, each equipped with an easily re-sharpened high speed steel blade. One model cuts holes from any diameter from 5/8 to 1 1/4 inch through a 1/8 inch thickness. The other model covers all expansions from 1 to 2 1/2 inches through thicknesses up to 3/8 inch. The tools are designed to operate in light drill presses, portable drills, or breast drills and are also available with square shanks for use in hand braces. A design is employed which permits easy, accurate adjustment. It consists of a drill which starts the hole and also serves as a pilot for the tool, a hardened body with a milled slot into which is set a specially-ground high speed steel tool bit, and a hardened ground shank. Adjustment is obtained by loosening the hexagon bolt which holds a firm locking clip, and sliding the blade to the correct distance from the pilot. Thickness capacity of the tool varies with the type of material being worked. Metals up to 3/8 inch thickness are cut quickly and smoothly. Wood, plastics, and compressed materials may be cut to much greater thickness capacity being unlimited. Complete information on request.

BRUNO TOOLS, Dept. CP, 9330 Santa Monica Blvd., Beverly Hills, Calif.

When inquiring specify CP A411 — see information request blank, pgs. 2-3

### SOUTH BEND LATHES

FOR CLOSE  
TOLERANCES  
★  
SMOOTH  
FINISH

It is for their precision that South Bend Lathes are best known. They can be depended upon for the most exacting operations where close tolerances must be maintained and smooth finish required. Made in Toolroom and Engine Lathe types with 9", 10", 13", 14 1/2", and 16" swings; two sizes of Turret Lathes, 9" and 10" swings. Write for Catalog No. 100-C.



When inquiring specify CP A412 — see information request blank, pgs. 2-3

Want  
Fluorescent  
for  
the Office?

The Wakefield  
**BEACON**

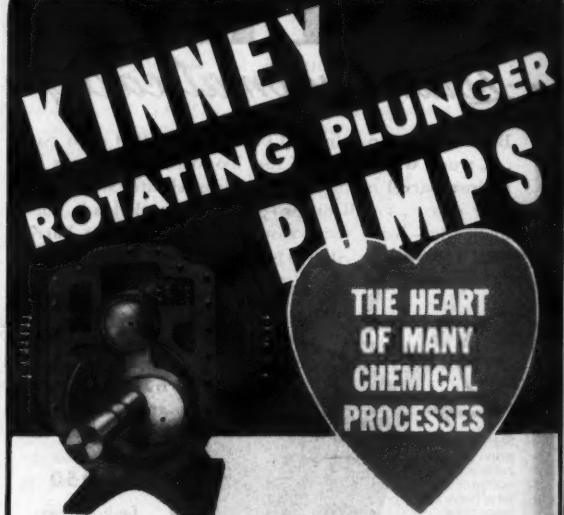
efficient, effective, good looking!

DESIGNED for high quality fluorescent lighting at lower cost, the BEACON is a "honey" for lighting essential offices or drafting rooms. Provides smooth, shadowless light to help handle paper work faster and reduce eyestrain. Maintenance is especially easy, with no horizontal surfaces on which dust can collect. New rigid design louvres hinged to make lamp replacement simple. Ask your Graybar house for details or write us.

HELP PREVENT INDUSTRIAL ACCIDENTS . . . GUARD MOVING PARTS . . . HAVE GOOD LIGHT . . . BE ALERT.

**THE F. W. Wakefield BRASS COMPANY**  
RED SPOTLIGHTING FOR WAR PRODUCTION FOR PEACETIME FUTURE  
VERMILION, OHIO

When inquiring specify CP A413 — see information request blank, pgs. 2-3



An absolutely dependable pump is the very heart of many an important chemical process. Kinney Rotating Plunger Pumps assure the unfailing flow of viscous liquids such as cold molasses, cup grease, white lead, etc. The consistently high volumetric efficiency of these Kinney Pumps permits their use for accurate proportioning. Available plain or steam jacketed. Write for Bulletin 18.

**KINNEY MANUFACTURING COMPANY**

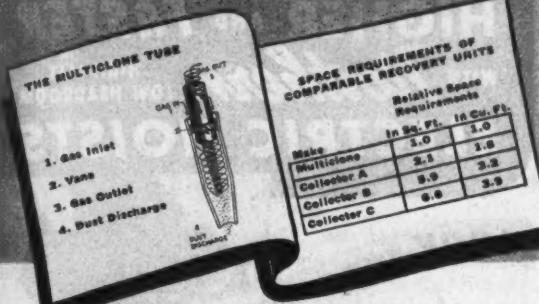
3572 WASHINGTON ST., BOSTON 30, MASS.

New York Chicago Philadelphia Los Angeles San Francisco  
We also manufacture vacuum pumps, strainers, clutches and cut off couplings.

When inquiring specify CP A414 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

**The MULTICLONE Requires Less Space  
... Yet Recovers More Dust!**



WHEN selecting equipment for recovering dusts, fly ash and other suspensions from gases, check space requirements. Compact equipment not only saves valuable plant space, but is easier to install, simpler to maintain, requires less duct work, less insulation.

In the MULTICLONE you get maximum compactness (see chart above) without sacrificing recovery efficiency. In fact the MULTICLONE will equal—or exceed—the efficiency of any other collector working under the same conditions!

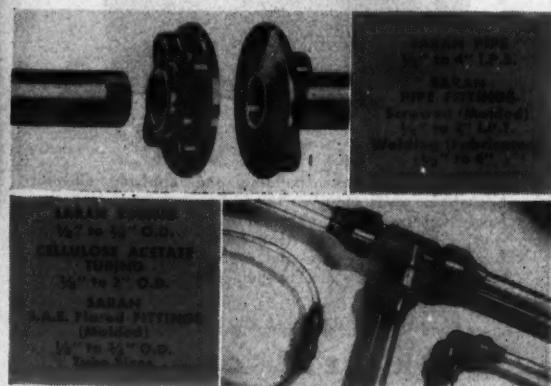
Get the full story on MULTICLONE advantages. Send for this booklet.



When inquiring specify CP A415 — see information request blank, pgs. 2-3

## —PLASTIC— Pipe, Tubing, and Fittings

Keeping abreast of new developments in the piping field, Grinnell now offers Plastic Pipe, Tubing and Fittings for the various applications where its special advantages provide improved performance and economy.



Write or call  
the Grinnell office  
nearest you.

**GRINNELL**  
WHENEVER PIPING IS INVOLVED

GRINNELL COMPANY, INC.

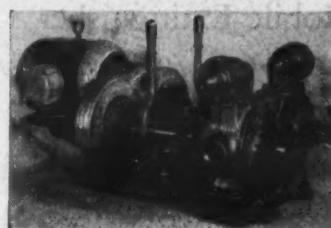
Executive Offices, Providence 1, Rhode Island

**SALES OFFICES:** Atlanta 2, Ga., Charlotte 1, N. C., Chicago 9, Ill., Cleveland 14, Ohio, Houston 1, Texas, New York 17, N. Y., Minneapolis 15, Minn., Philadelphia 34, Pa., St. Louis 10, Mo., St. Paul, Minn.

When inquiring specify CP A416 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## PRODUCTION



TWIN PUMPING UNIT

### Twin Unit Pumps Two Different Liquids

Has capacity for temporary peaks; pumps 90 gpm each; lined or unlined or with steam jacketed heads

**Uses** — Its double capacity to take care of temporary peak requirements and its ability to handle two different liquids without contamination indicates its suitability for operations where such service will be advantageous.

**Features** — Operation controlled by specially designed twin clutches and the pumps may be operated singly or together.

**Description** — The pumps operate on the bucket design "swinging Vane" principle and are furnished in three constructions, unlined, with removable liners or with steam jacketed heads for pumping highly viscous liquids or materials that are solid at room temperatures.

BLACKMER PUMP CO., Dept. CP, Grand Rapids 9, Mich.

When inquiring specify CP A417  
— see information request blank, pgs. 2-3

### Steel Safety Mats

Crimp design increases non-skid protection; available in any length in widths up to 6 ft.

**Uses** — Can be placed in any work area for comfort and non-skid protection of workers; useful in front of machines and benches.

**Features** — Non-skid character enhanced by slight crimp or bend in one side of the strong steel mesh. These mats roll up like a rug and are easily moved when necessary. Prevent slipping, falls, keep feet dry. Non-absorbent and easily cleaned with hot water or cleaning solution.

**Description** — Made in any length in widths up to six feet. Multiples can be securely joined without special tools. Details on request.

WM. F. KLEMP CO., Dept. CP, 6641 S. Melbina Ave., Chicago 38, Ill.

When inquiring specify CP A418  
— see information request blank, pgs. 2-3



### For DUSTY and POWDERY Materials

• Departing from conventional construction, Bartlett-Snow's new non-leaking multiple outlet gate replaces the pivoting plate usually found in a flop gate, with a pivoting chute having semi-circular sides—see sectional view above. Consequently material passing through the gate—regardless of how fine or powdery—is wholly contained within the chute, and has no opportunity to leak through the clearances, that must of necessity be maintained in pivoting plate construction,—and pass down and out the wrong leg. The chutes are operated easily with a chain and chain wheel without sticking or binding,—and are held in position by gravity until changed. The gates have self-damming spouts, and are available with 2, 3, 4, or more outlets,—and in any capacity desired. Let us quote on your requirements.

**THE C. O. BARTLETT-SNOW CO.**

6241 HARVARD AVENUE • CLEVELAND 5, OHIO

ENGINEERING AND SALES REPRESENTATIVES IN THE PRINCIPAL CITIES

DRYERS, COOLERS, KILNS, CALCINERS AND PRESSURE VESSELS • CONVEYING AND ELEVATING EQUIPMENT  
OF ALL KINDS • COLLOID MILLS • BOILER PLANT COAL HANDLING, STORAGE AND RECLAIMING SYSTEMS  
CRUSHERS, PULVERIZERS, SCREENS AND FEEDERS • POWER TRANSMISSION EQUIPMENT

When inquiring specify CP A419 — see information request blank, pgs. 2-3

Page 81

# SKILLED WORKMEN

Making FINE CLOTH

Making MEDIUM MESH HEAVY CLOTH

Making HEAVIER CLOTHS

Machines are wonderful creations but in the making of wire cloth the hand of the skilled workman still sets up and controls the product of the loom. He's more than a watchman. At Newark, he's the creator of an accurately-made product.

We lay great stress on accuracy and rightly so, we believe. Of what use for screening is a woven wire screen if it is not accurate to begin with or cannot maintain its mesh count or spacing throughout its life.

**NEWARK**  
for  
ACCURACY

The hundreds of  
NEWARK Wire Cloth  
users also believe that  
"accuracy in wire  
cloth" counts heavily.

**Newark Wire Cloth Company**

336 Verona Avenue

Newark 4, N. J.

9-NWC-1

When inquiring specify CP A420 — see information request blank, pgs. 2-3

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## PRODUCTION

### 25 Lb. Mobile Extinguisher

Control valve in extinguisher handle permits moving unit and discharging it with one hand while other hand guides horn



#### INSTANT UNIT ACTION

to  $5\frac{3}{4}$  feet of hose. Other hand is free to direct discharge of extinguisher over areas in arcs of 10 to 20 feet. The easy, natural action of the control valve combined in the handle gives operator assurance and adequate length of hose and design of horn permits effective attack on flames while operator remains at safe distance. The extinguisher

**Uses** — This 25 lb. wheel-type carbon dioxide extinguisher is especially suitable for use in effectively combatting gasoline, oil, paint, grease, machine, electric and surface fires in plants and other premises.

**Features** — Extinguisher is moved and operated with uninterrupted, single-sweep action by means of steel handle on which is mounted the palm-trigger valve permitting operator to transport unit and discharge blanket of carbon dioxide through horn connected

to  $5\frac{3}{4}$  feet of hose. Other hand is free to direct discharge of extinguisher over areas in arcs of 10 to 20 feet. The easy, natural action of the control valve combined in the handle gives operator assurance and adequate length of hose and design of horn permits effective attack on flames while operator remains at safe distance. The extinguisher

LIFT THE LOAD  
**HIGHER AND FASTER**  
WITH *Northern* HIGH-LIFT  
LOW HEADROOM  
**ELECTRIC HOISTS**

LOCK-UP  
HIGH-LIFT  
HOOK GOES

The high hook lift-low headroom feature of Northern Electric Hoists will add 12" to 36" to the working height of your building—without extra expense—without altering the building. This means better use of storage space, easier handling of bulky loads, faster operation because clearances are greater.

Northern Hoists are also superior in strength, lifting power, speed, and handling.

*Northern*

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ENGINEERING WORKS

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Offices in Principal Cities

Northern Crane & Hoist Works Limited, Windsor, Canada

When inquiring specify CP A422 — see information request blank, pgs. 2-3

# BUCKETS

for Every Service



For excellence in  
war production

Link-Belt has been building and applying elevator buckets for over sixty years, and improvements in design have kept pace with improvements in production facilities. The line includes steel, malleable iron and Promel buckets of suitable size and type to meet any requirement. Stocked at all Link-Belt plants, warehouses and many distributors.

Send for Standard Equipment Catalog No. 850

**LINK-BELT COMPANY**

Chicago 8, Indianapolis 6, Philadelphia 40, Atlanta,  
Minneapolis 6, Dallas 1, San Francisco 24, Toronto 8.  
Offices, warehouses and distributors in principal cities.

**LINK-BELT**

When inquiring specify CP A423 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

is mounted on hard rubber wheels and the unit itself is balanced, standing or in operation. Complete information on request.

RANDOLPH LABORATORIES, INC., Dept. CP, 8 E. Kinzie St., Chicago, Ill.

When inquiring specify CP A424 — see information request blank, pgs. 2-3

### Corn — Facts & Figures for Processing Industries Using Corn

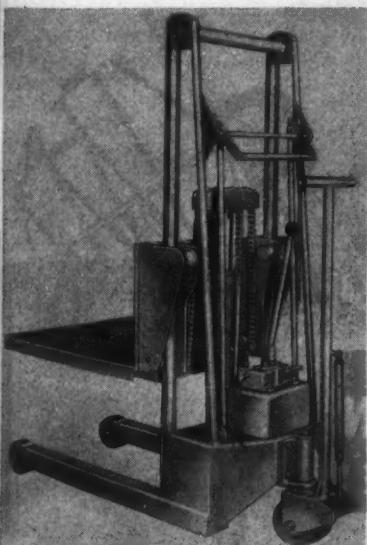
A forty-eight page reference book gives an over-all picture of the importance of corn to American agriculture, marketing agencies and industries, particularly as they are concerned with the war effort. In view of the series of government actions relating to corn the book is of practical interest and its facts and figures very timely. Most of the comments are supported by selected statistics. References in the appended biography indicate sources of more detailed discussion and figures. The sources of much of the written material in this booklet include the United States Department of Agriculture, United States Department of Commerce, a number of state colleges of agriculture and several other books. Of interest to food processing industries are sections on, "Industries Using Corn," "Mixed-Feed Manufacturers," "Dry Millers," "Wet Millers," "Distilling & Fermentation Industries," and "Corn Products and Their Uses." Copies are available upon request.

CORN INDUSTRIES RESEARCH FOUNDATION, Dept. CP, 5 E. 45th St., New York 17, N. Y.

When inquiring specify CP A425 — see information request blank, pgs. 2-3

### Combined Lift and Tiering Truck

*Light weight for easy maneuvering; turns in its own length; finger tip lowering*



**Uses** — Provides combination lifting-tiering service.

**Features** — Extremely light weight. Standard 1000 pound capacity model weighs 495 pounds.

**Description** — Unification of a rapid, easily manipulated lift truck and that of a safe, speedy lifting and tiering equipment. The unit turns readily within its own length. Special tubular

UNIT combines lift-tiering service and formed steel construction and is Timken equipped. It has a powerful floor lock and a controlled finger-tip lowering device. The standard stock model provides a platform 24 x 30 inches with a raising range of 42 inches — 6 inches lowered to 48 inches elevated. Units can also be supplied to meet other specifications.

LYON-RAYMOND CORP., Dept. CP, 1585 Madison St., Greene, N. Y.

When inquiring specify CP A426 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

For MORE than  
6 YEARS . . .

# GATES Synthetic Rubber V-Belts



*In ORDNANCE PLANTS*



*—and HUNDREDS of Others*

# GATES

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—Have Been **OUTWEARING**  
Any **NATURAL RUBBER** Belts Ever Used!

More than 6 years ago Gates began supplying American Industry with thousands upon thousands of V-Belts made entirely of synthetic rubber.

This was long before synthetic rubber came to be used merely as a substitute for natural rubber—in fact, Gates chose a very special synthetic rubber for the one reason that it is, in many important respects, greatly superior to natural rubber.

\* There are, of course, many kinds of synthetic rubber. Gates uses each kind where it best meets some particular service need.

For example:—one special synthetic rubber which Gates uses extensively in making V-Belts has the ability to withstand oil and heat much better than natural rubber can. Where oil and heat conditions are especially severe, Gates special synthetic V-Belts are giving 3 times to 4 times the service life of any natural rubber V-Belts ever used.

This is the record not of a few belts over a limited period but of thousands upon thousands of Gates synthetic rubber V-Belts installed in hundreds of plants and factories during the past 6 years.

Today, as you know, all industry depends on belts made of synthetic rubber—and that is exactly why Gates' long head-start in fabricating belts of synthetic rubber is so important to you **NOW!**

By simply picking up your phone and calling the Gates Rubber Engineer, you can now have, in your own plant, the full benefits of Gates' greater knowledge and experience—a distinct advantage to you in longer belt life and in trouble-free operation.

## THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

# VULCO ROPE DRIVES

When inquiring specify CP A427 . . . see information request blank, pgs. 2-3

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# 3 BIG FEATURES of the Johnson Electrap

... make it today's highest development in a trap for pumping or lifting service, or draining vacuum lines.



## 1. ABSOLUTE DEPENDABILITY

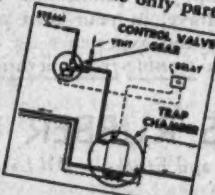
The Johnson Electrap utilizes a new electrical method of operation, which eliminates all floats and stuffing boxes—all moving parts from trap chamber. Its simple control consists of two metal electrodes which signal a solenoid valve, by means of an electric relay, when lifting pressure is to be admitted to trap chamber. Operation is as dependable as the flow of electricity.

## 2. OUTSTANDING PERFORMANCE

This electrical operation of the Electrap brings greater capacity, better all around performance. In scores of plants, the Electrap has replaced expensive pumps or cumbersome tilting traps. For draining vacuum lines it is equally outstanding—is actually operating under vacuum as complete as 27" of mercury.

## 3. REMOTE CONTROL

Here at last is the answer for those many installations where trap chamber must be set in some inaccessible corner or pit. All the controlling valve gear—the only parts which might require servicing—are gathered in one compact assembly. This can be mounted in any convenient position as shown.



Write for catalog showing the many applications of the Johnson Electrap

**The Johnson Corporation**

825 WOOD STREET  THREE RIVERS, MICHIGAN

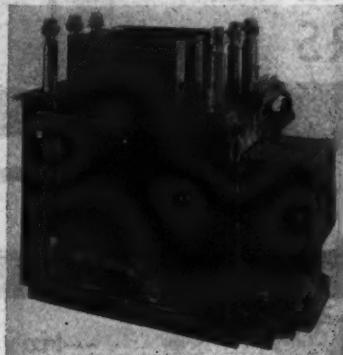
When inquiring specify CP A428 — see information request blank, pgs. 2-3

Page 84

## PRODUCTION

### Magnetic-Type Air Circuit Breaker

Available in high voltage, oil-less switchgear rated at 5000 volts and below and 150,000 kva interrupting capacity and below



BREAKER for vertical-lift metal-clad switch gear equipment

"Rupt-air" magnetic type air circuit breaker is available in high voltage switchgear rated at 5000 volts and below and 150,000 kva interrupting capacity and below. Overall dimensions are as compact as standard oil breaker switchgear. All parts are readily accessible. The magnetic circuit consisting of one husky blowout coil and two laminated iron pole pieces per phase, is arranged to force the arc

Uses — In this air breaker the arc chute has been carefully coordinated with the contact and arc runner design to give consistent and reliable interruption throughout the entire range of current to be interrupted.

Description — This is in line with practice of oil elimination in indoor switch-gear equipment and the "Rupt-



40 years of valuable experience can mean a lot when it comes to the Control of Industrial Dust.

The giant "CH" Collector above and the "CP" Unit Collector in the insert show the wide range of Pangborn Dust Control applications. Both are the fruit of our 40 years of valuable experience.

Bring your dust problem to Pangborn, today!

**PANGBORN**  
WORLD'S LARGEST MANUFACTURER OF DUST COLLECTING AND BLAST CLEANING EQUIPMENT  
PANGBORN CORPORATION HAGERSTOWN, MARYLAND

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WHEN BETTER METALS ARE MADE — GROEN WILL USE THEM



IT'S A  
GROEN  
MIXER TYPE  
KETTLE

## WIDELY POPULAR WITH CHEMICAL PLANTS

Stainless Steel construction. Single or double motion motor driven agitators. Motor and gear reducers fully enclosed, mounted on steel chasis across. Expertly designed and built for consistent performance. You'll like it. Write our Print Division. GROEN MFG. CO., 4335 W. ARMITAGE AVE., CHICAGO 39, ILL.

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U.S. BONDS  
STAMPS

WORLD'S LARGEST PRODUCERS OF  
STAINLESS STEEL STEAM JACKETED KETTLES

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CHEMICAL PREVIEW SEPTEMBER 1958

## PRODUCTION

chute immediately upon separation of the arcing contacts. Complete inspection and maintenance can be accomplished without disturbing the arc chute or magnetic circuit in any way.

ALLIS-CHALMERS, Dept. CP, Milwaukee, Wis.

When inquiring specify CP A432 — see information request blank, pgs. 2-3

### Floor and Roof Maintenance Materials

Six floor maintenance and two roofing products are each described in interesting and practical detail in handy pocket size folder. Illustrations show correct application and ease with which these products may be used. The selection includes: a quick setting resurfacer for heavy service that may be used on concrete or wood floors, a floor coloring also for concrete or wood in four colors that has preserving and dust-proofing properties, leak-proofing material that may be mixed with cement for patching and damp-proofing, a sealer, a non-slip wax, a solution to prevent concrete floors from absorbing acids, water and oils and two roofing coatings one for composition and the other for metal roofs. Folder sent on request.

FLEXROCK CO., Dept. CP, 3611 Filbert St., Philadelphia, Pa.

When inquiring specify CP A433 — see information request blank, pgs. 2-3

### Corrosion Resistant Centrifugal Pumps in Three Models

Made of carbon stock impervious to seepage under high pressure; pumps sealed with a rotary faced seal

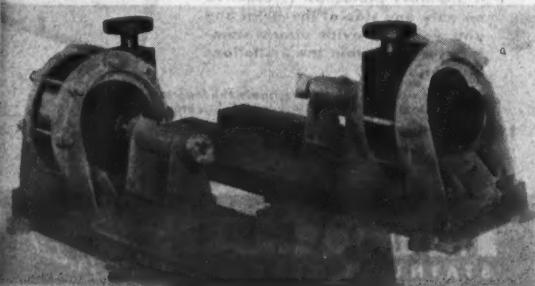
Uses — These centrifugal pumps made of "Karbate" material may be used with practically all corrosive fluids, including acid mixtures such as HCl and HSO and without danger where sudden variations of fluid temperatures induce thermal shock.

Features — Pumps are sealed with rotary faced seal, thereby eliminating the maintenance problems that may be encountered in stuffing boxes.

Description — Constructed of chemically inert "Karbate" material which is a carbon stock made impervious to seepage of liquids under high pressure. These pumps are so engineered that from the inlet to outlet the liquids are in contact with the "Karbate" material. The "Karbate" sleeve covers the steel shaft and is cemented to the impeller disc rather than to the shaft itself. Offered in a selection of three pumps, the largest of which operates against 100 feet head.

NATIONAL CARBON CO., INC., Dept. CP, 117th & Madison, Cleveland, Ohio.

When inquiring specify CP A434 — see information request blank, pgs. 2-3



PUMPS for handling various acid mixtures

SEPTEMBER-OCTOBER, 1944

*A name worth remembering!*

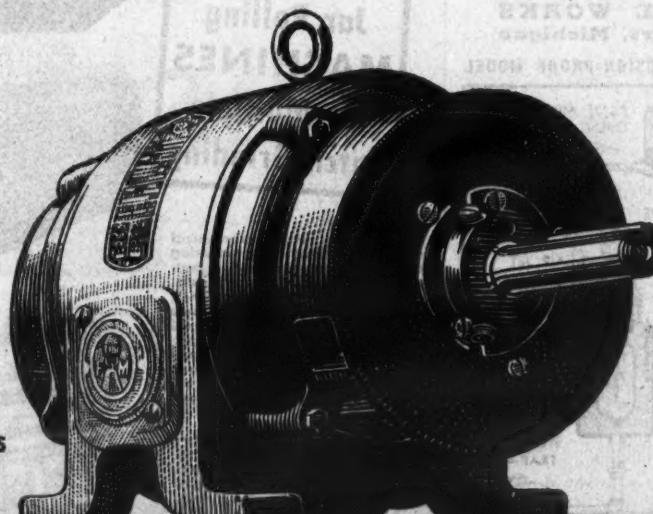


**FAIRBANKS-MORSE**

After the war, the name Fairbanks-Morse will continue to mark performance-proved products only, as it has for 114 years.

No race to get civilian products onto the market

early will tempt us to break this pledge.



BUY MORE  
WAR BONDS

#### Features of the New Fairbanks-Morse General-Purpose Motor

- It is a 40° C. motor.
- It is a protected motor.
- It has an optional conduit box assembly.
- It has cross-flow ventilation.
- It has ball bearings, sealed in and protected.
- It has the exclusive Fairbanks-Morse Copperspun Rotor.

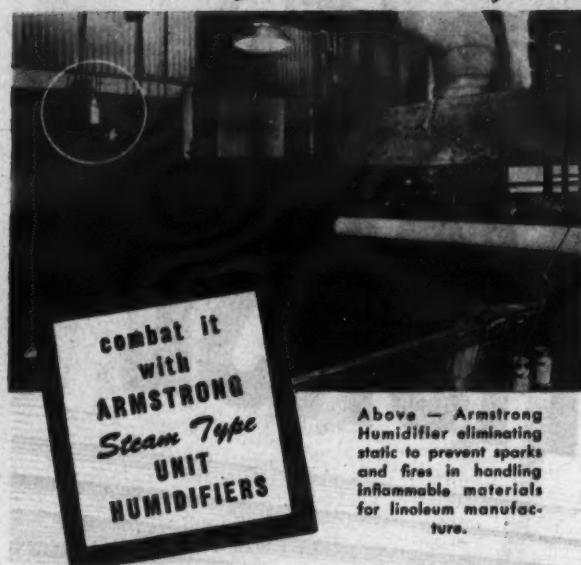
DIESEL LOCOMOTIVES • DIESEL ENGINES • GENERATORS • MOTORS • SCALES • PUMPS • STOKERS • RAILROAD AND FARM EQUIPMENT

FAIRBANKS-MORSE & CO., CHICAGO 5, ILLINOIS

When inquiring specify CP A435 . . . see information request blank, pgs. 2-3

DRY AIR IS

# DEADLY



**ARMSTRONG** Steam Type Humidifiers  
Eliminate "static conditions" and drying out  
of hygroscopic materials, control dust and im-  
prove working comfort and efficiency.

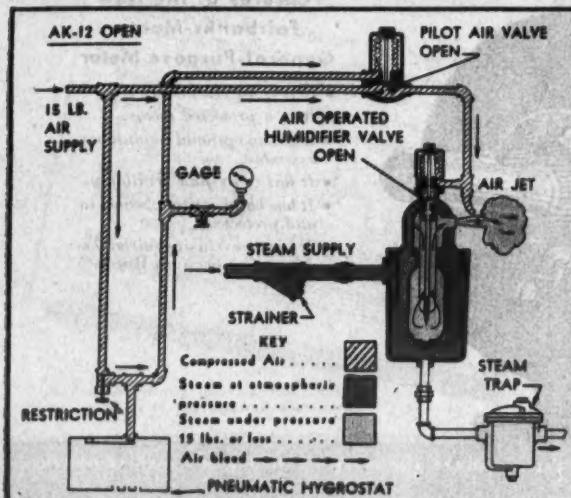
Equally as effective as more elaborate systems, they feature low cost and economy. Installed like unit heaters and supplied from existing steam lines . . . small \$100 model, complete with Friez humidistat will handle 40,000 cu. ft. of space . . . no dripping or puddles . . . no increase in heating load . . . quiet, automatic operation . . . almost perfect uniformity.

Write today for the name of the representative near you.

**ASK FOR NEW BULLETIN** — Complete details plus facts about humidity.

**ARMSTRONG MACHINE WORKS**  
880 Maple Street, Three Rivers, Michigan

DOUBLE SAFETY — AIR OPERATED EXPLOSION-PROOF MODEL



When inquiring specify CP A436 — see information request blank, pgs. 2-3

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## PRODUCTION

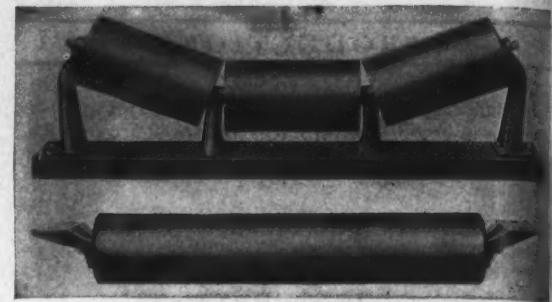
### Constant Speed, Constant Tension Windup Machine for Wire, Textiles

*Applications in lacquering, saturating, coating, dyeing, rinsing operations with many materials*

**Uses** — For smooth, controlled tension wind-up of wire, cable, rope, tape, cordage or other continuous or semi-continuous materials after processing operations.

**Features** — The winding is accomplished without slip belts, clutches, friction pulleys or like devices but by hydraulic or electronic units built into the machine itself. Either type of unit accomplishes wind-up smoothly, without steps, pulsations or jerks upon the material being wound. By building a power take-off into the machine, a synchronized helper drive to other portions of the processing units may be utilized, without the need for separate speed control units or drives. By means of special design employed, the tension of the materials which are wound on the reel, core or drum is held to very close tolerance at any point within a wide operating range. Because of this flexibility of design, wind-up speeds can be increased or decreased during operations by means of a simple, instantaneous adjustment without varying the tension of the material. This adjustment changes wind-up speed regardless of diameter build-up and automatically adjusts the traversing mechanism with complete synchronization. By the addition or removal of counterweights, tension of the material can be increased or decreased during operation, with no other adjustment required. Tensions from a few ounces to hundreds of pounds can be obtained.

**Description** — This equipment consists of a single ma-



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Your Belt Conveyors are doing extra duty . . . handling extra materials . . . working harder, longer. Protect your investment by replacing NOW those parts that show signs of wear.

Robins Idlers will increase the efficiency of any Belt Con-  
veyor system . . . will lengthen the life of your present Con-  
veyor, whatever its make. So will Robins Pillow Blocks,  
Pulleys, Takeups, Holdbacks and other essentials described in  
Bulletin E2-CP-8.

For any problem concerning the handling of bulk-materials,  
write Robins.

ENGINEERS • MANUFACTURERS • FABRICATORS

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Founded in 1896 as Robins Conveying Belt Co.  
PASSEIC • NEW JERSEY

MATERIALS HANDLING MACHINERY

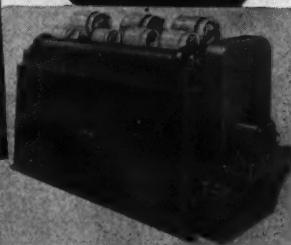
For Material Aid in  
Materials Handling

... It's ROBINS

When inquiring specify CP A438 — see information request blank, pgs. 2-3

**Just Put 'Em On  
Let 'Em Run  
Lift 'Em Off**

**ABBE**  
Jar Rolling  
MACHINES  
for Multiple  
Batch Grinding



Quick, easy, safe, economical  
grinding, mixing or processing  
of wet or dry materials in  
multiple batches of 1 pt. to 4 gals.  
in any kind of jar or container.  
Any combination of jar sizes  
handling the same or different  
materials can be handled simultaneously.  
No clamping or fastening  
jars in frames; no adjusting;  
jars are put on or lifted off,  
even while rollers are in motion.

Made in single or multiple row  
arrangements in single or multiple tiers, in any desired roller  
length, with or without  
storage cabinets.

Write for Bulletin No. 36

**ABBE ENGINEERING CO.**  
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When inquiring specify CP A437 — see information request blank, pgs. 2-3

If the job is one of these 3-  
**Try INGERSOLL**  
SPECIAL STEEL MILL SERVICE  
first!

If the job demands steel that will  
give proper resistance to corrosion.

If the job calls for the use of dependable  
heat-resisting alloy steels.

If stainless protection is required  
on only one side of the metal and  
you want to provide utmost stainless  
service within the limitations  
of your budget.

It will pay you to investigate the Ingersoll Special  
Steel Mill Service. Ask your Fabricator, or write...

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**INGACLAD**  
STAINLESS CLAD STEEL

*Borg Warner  
Product*

When inquiring specify CP A439 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW SEPT.

**More Comfortable  
More Efficient  
Hand  
Protection**



**Light STANZOILS** { with non-slip finish that really won't slip

They're light weight, comfortable, unusually sensitive at the finger-tips—ideal for light assembly or inspection work. Made of neoprene, they resist damage by oils, acids, give better hand protection, last longer, cost less. Revolutionary non-slip finish assures firm easy grip of slippery pieces—faster, more accurate work. Please your workers and avoid costly liability claims with these Stanzoil RSW-13's. Write for the whole story—now.

Synthetic Rubber Division  
**THE PIONEER RUBBER COMPANY**  
239 Tiffin Rd., Willard, Ohio, U.S.A.  
New York • Los Angeles

MADE WITH DU PONT NEOPRENE

When inquiring specify CP A440 — see information request blank, pgs. 2-3

# PATTERSON



ENGINEERED  
NEW  
PERFORMANCE  
IN FASTER—  
BETTER MIXING!

THE  
CENTRI-CONE  
LIQUID MIXER



(PATENTED)

LIQUID MIXERS  
DRY BLENDERS  
AUTOCLAVES  
PROCESS VESSELS  
CHEMICAL AND  
PROCESSING EQUIPMENT

THE PATTERSON FOUNDRY  
AND MACHINE CO.  
EAST LIVERPOOL, OHIO, U.S.A.

When inquiring specify CP A441 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

## PRODUCTION

chine, complete with a self-contained power unit, multi-wrap capstan, or drive rolls, tension and speed adjusting mechanism, adjustable synchronized traversing mechanism, demountable reel or drum shaft, and hydraulic or electronic speed control equipment. It is equipped with drive and pull rolls to wind continuous materials on reel, spool or core. Windup machine housing is constructed of heavy steel plate and cast members bolted to steel frame. Housing and frame carry self-locking shaft bearing for reel as well as float sheave assembly column and complete traverse. Within the housing proper is mounted a variable speed mechanism and a hydraulic motor and pump unit. Float sheave stand is complete with two stationary sheaves mounted on steel shafts and riding in bushed hubs. Float sheave itself is single groove, mounted in cast iron floating frame and affording maximum travel. It is connected by steel roller chain to control handle of hydraulic operating valve. Large diameter traverse screw is driven by variable speed reducer driven in synchronization by power take-off, adjustable through a 20-1 range. Reel shaft is constructed of machined steel. The wind-up machine is driven by a variable speed reducer mounted inside stand housing, equipped with ample motor capacity. The speed of the capstan can be varied over a 4-1 range. Bulletin, available upon request, describes operating principles in detail and gives complete specifications, including maximum and minimum reel sizes and speeds and also information concerning driven pay-off and wind-up system.

THE INDUSTRIAL OVEN ENG'G. CO., Dept. CP, 11621 Detroit Ave., Cleveland, Ohio.

When inquiring specify CP A442 — see information request blank, pgs. 2-3

## INFRA-RED

NEW ADVANCED

ROSS AIRAY OVENS

INFRARED RADIATION  
PLUS AIR CIRCULATION

Here is Infra-Red at its best! Developed after extended research and experimentation, the ROSS AIRAY System utilizes a scientific method for controlling radiant temperatures. (patent applied for). Ambient temperatures can be controlled by temperature of the goods. Equalizes temperatures preventing stratification in oven. Positive control of air makeup and exhaust volumes. Heat losses greatly reduced.

Write for new Bulletin 145. Laboratory testing facilities available.



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ENGINEERING CORPORATION

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BOSTON-9

When inquiring specify CP A443 — see information request blank, pgs. 2-3



*Got your copy  
OF THE NEW  
MOYNO PUMP  
BOOK?*

**Send for it NOW—  
to Help Solve Your  
TOUGH Pumping  
Problems!**

Now is the time to give your pumping setup a really critical analysis. For, with today's demands, the type of pumps you use might well account for the difference between output goals met or missed—and between profit and loss.

This new R & M Moyno Pump book will aid you in making that analysis, because it compares the revolutionary Moyno Pump with other types—weighing its advantages on the scale of actual experience in countless industries. The Moyno has cut maintenance costs to a fraction of former bills, because of its unprecedented resistance to wear. It has slashed down-time way down, because of its extreme accessibility. And it has improved product quality by handling heavy viscous and abrasive liquids—without turbulence or cavitation.

Get your copy of this new book! It was written by pump engineers for other engineers and production men—in specific, ungarnished, factual terms. And it's yours . . . for the asking. Mail this coupon today!

## ONLY ONE MOVING PART!

Here's the patented principle of the R & M Moyno Pump's amazing performance. A single-threaded helical rotor revolves in a double-threaded helical stator, providing pumping action like that of a piston moving through a cylinder of infinite length.



Moyno pumps are manufactured under R. Moineau patents.

ROBBINS & MYERS, Inc., Mayes Pump Division, Springfield, Ohio

Please send me the new 8-page book on the R & M Moyno Pump.

Name.....

Firm Name.....

Address.....

Pump will handle.....

When inquiring specify CP A444 — see information request blank, pgs. 2-3

Page 87



## Adjustable Table and Rack for Storing up to 12 Removable Tops

Permits alternating work on various jobs without disturbing layout

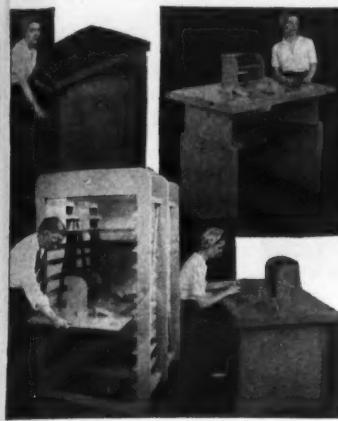


TABLE AND RACK for extra tops

to work on one job and then another without disturbing layout of any one job. Finest adjustment as to height, angle and location gives worker maximum comfort and most efficient conditions for precision work.

**Description** — Tops easily removable from base. Height adjusted by turning crank. Rack is provided for safe, space saving storage of extra tops, including those on which work is already laid out. Complete information on the "Rightop Work Table" on request.

VOSS MACHINERY CO., Dept. CP, 2844 B. W. Liberty Ave., Pittsburgh 16, Pa.

When inquiring specify CP A451 — see information request blank, pgs. 2-3

## General Purpose Self-Priming Centrifugal Speed Pumps 3000 - 125,000 GPM

Eighteen page and cover bulletin concerns general purpose self-priming centrifugal pumps for (1) general dewatering service such as removal of water from flooded portions of plant, excavations and sewers, (2) oil field use where they handle all kinds of liquid moving tasks such as supplying water to drilling rigs, handling drilling mud, removing waste oil; (3) for utility applications (4) in process plant applications. These speed pumps are made in capacities ranging from 3,000 to 125,000 gallons per hour. Pump sizes are from  $1\frac{1}{2}$  in. to 8 in. A junior model combining easy portability with sturdy construction and capacity of 3000 gph. One of the features of these pumps described in interesting detail is the air peeler. It is a sturdy, sharp edged blade mounted directly above the impeller. When the impeller spins, air is forced to the outside of the impeller vanes. This deflected passes out of the discharge. This speeds up priming of the pumps. On these pumps the correct tolerances between the impeller and the volute on the suction side are maintained by high carbon liners in combination with the Z metal impeller. When wear takes place the original clearance can be restored by replacing the liner. Copies on request.

CHAIN BELT CO., Dept. CP, 1600 W. Bruce St., Milwaukee 4, Wis.

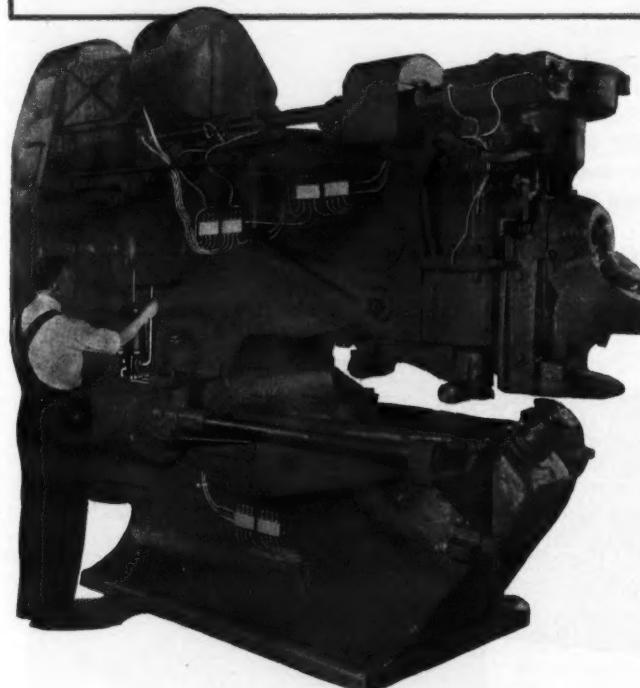
When inquiring specify CP A452 — see information request blank, pgs. 2-3

# HOW TO LUBRICATE ALL OF YOUR BEARINGS

## at once

... and Increase Bearing Life

5 to 25 Times . . .



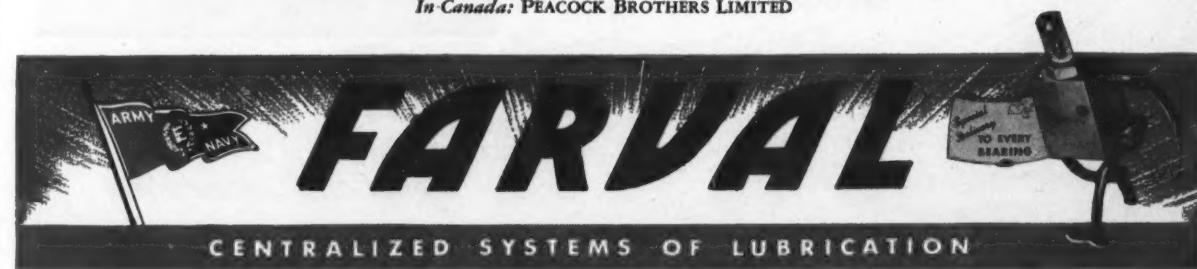
Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing  
In Canada: PEACOCK BROTHERS LIMITED

Positive lubrication by the Farval Centralized System prolongs the useful life of your bearings from 500% to 2500% beyond the average for hand oiling. In addition, Farval eliminates down time required for bearing changes.

The Farval Centralized System forces lubricant under pressure from a Central Pumping Unit to *every* bearing, regardless of location —does a complete job in less than one minute with machines in full operation. Farval will cut your lubricant consumption by 75% —will save Time—save Men—prolong the life of your machines—increase your production and reduce your costs.

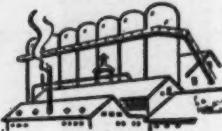
Install Farval as you convert. Wire today.

The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.



When inquiring specify CP A453 . . . see information request blank, pgs. 2-3

# MECHANICAL GUARDIANS FOR CHEMICAL PIPE-LINES



In chemical industries, synthetic rubber plants, oil refineries...any plant, piping precious or potentially hazardous fluids...a mistake, whether unintentional or deliberate, in adjusting a chemical pipe-line valve can prove both dangerous and costly. But prevention of these human errors is easy and infallible with BENDIX-CORY\* SAFETY INTERLOCKS...the locks that say "No!" to unauthorized handling of your valves.

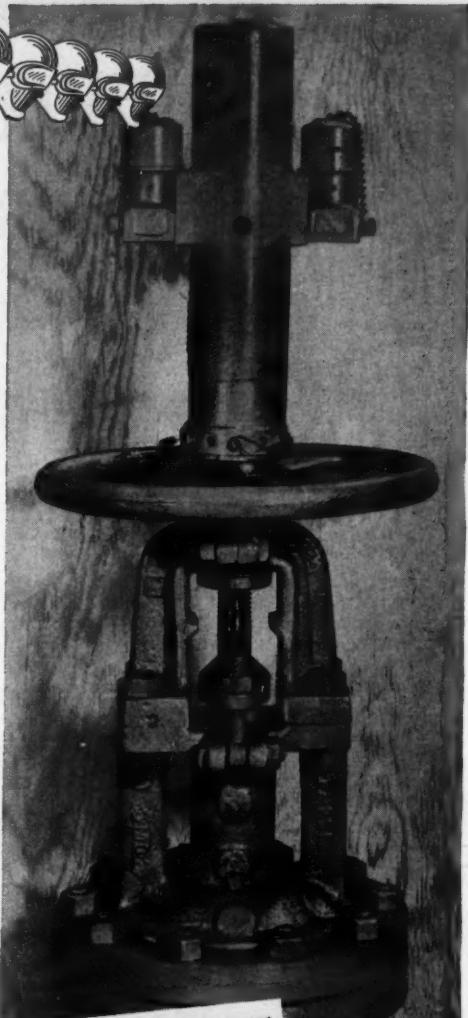
The BENDIX-CORY SAFETY INTERLOCK illustrated gives absolute control over the opening and closing of the valve to which it is attached...and, by use of an interlock key, can also control the position of this valve in relation to any number of other valves. The unit is wholly mechanical, and fully adjustable to compensate for valve wear—one of a number of interlocks specially designed for valve protection.

As safety men of the Bendix "Invisible Crew," BENDIX-CORY SAFETY INTERLOCKS are dependable guardians for your pipe-lines. Write for full information.

## CHECK THESE FEATURES

Interlocks stem valves 2" to 8". Other interlocks for globe, lead and porcelain valves.  
Absolute control of valve opening and closing under all conditions.  
Positions valve in relation to other valves.  
Ample strength characteristics.

Indoor or outdoor installation without removing valve from service.  
Fully mechanical. No electric circuit.  
Position indicator (not shown) shows valve open or closed.  
Adjustable compensation for valve wear.



\*TRADE MARK OF BENDIX AVIATION CORPORATION

Products of this division are members of "The Invisible Crew"—precision equipment which 30 Bendix plants from coast to coast are speeding to our fighting crews on world battle fronts.

**BENDIX MARINE DIVISION** • One Hanson Place, Brooklyn, New York

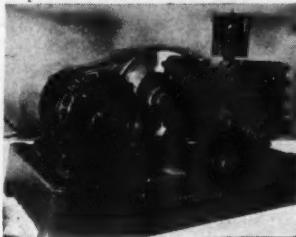
When inquiring specify CP A454...see information request blank, pgs. 2-3

THE INVISIBLE CREW  
Precision  
Equipment by  
**Bendix**  
Aviation Corporation

## PRODUCTION

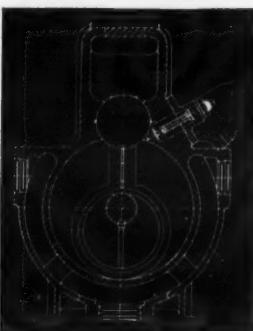
### Compound Vacuum Pumps Produce Vacuums Well Under 1 Micron

Single stage pumps 2 - 5 microns; pumps used in making vacuum tubes, penicillin, producing various organic chemicals in pure form through vacuum distillation



COMPOUND UNIT

um molds; vacuum canning; and dry vacuum pumping can be applied. Important in its use in producing various organic chemicals in a pure form through vacuum distillation. These pumps have increased the yield of many drugs and chemicals by producing high vacuums at low temperatures quickly before the material can cook or sear over; also used in vacuum oil refining service.



VACUUM PUMP - with feather valve - mechanical detail

single stages which have produced from 2-5 microns without the use of backing pumps; compounded they produce pressures under 1 micron. CVD pumps (see accompanying photo) is a vacuum pump of the compound type built into one casing. The film of oil used for sealing insures perfect lubrication and in many cases greatly reduces the upkeep due to chemical corrosion. All parts are made on jigs and are interchangeable. The piston and other parts needing to be air tight are sealed by a unique method whereby only the amount of oil necessary to provide lubrication and prevent leakage is admitted. The main operating (similar to the maker's rotating plunger type pump) consists of a shaft on which are mounted two eccentrics or cams set at 180 degrees apart. On these cams are mounted pistons, each with a hollow arm which moves freely in a slide pin. In operation as the shaft carrying the cams rotates in the direction indicated by arrows, a rotating plunger motion is imparted to pistons tangent to the inside of the cylinder. Thus the piston forces all the gas or air ahead of it out of the cylinder through the discharge valve and nozzle, into the separator tank, and thence to the atmos-

## PRODUCTION

phere. This creates a vacuum behind the piston to which a fresh supply of gas is admitted through intake ports in the hollow side of the portion of the piston and the exhaustion with the next revolution. Just before the piston attains its highest position, the diagonal slots in the hollow slide (through which air is drawn from hollow slide into cylinder are completely closed by slide pin, thus forming effective mechanically operated suction valve. The discharge valve is opened by the compressed air or gases and oil against atmospheric pressure and a setting of the valve springs. The re-expansive clearances have been reduced to a minimum, a condition essential to high volumetric efficiency and high final vacuum. The compound pump illustrated has produced vacuums so high that they have replaced mercury vapor pumps for a number of services. The working mechanism is similar to that employed in pumps (single stage — models VSD simplex and DVD — duplex) previously described. Because of the absence of mechanical contact these compound pumps maintain their performance over long periods without repairs. Pump itself consists of specially designed casing with cast-in fins for cooling of the surface. There are two piston chambers arranged in series with a connecting channel. Part of this channel is enlarged to serve as an oil supply for the high vacuum side of the pump. The fore-cylinder is sealed and lubricated by oil at atmospheric pressure. A special seal ring under the same pressure is provided to seal the shaft, where it passes through the open head for connection to the source of power. Complete information regarding all models of these vacuum pumps on request. KINNEY MFG. CO., Dept. CP, 3529 Washington St., Boston 30, Mass.

When inquiring specify CP A455 — see information request blank, pgs. 2-3

### Two-Jaw Compensating Chuck

Mount directly on standard spindle noses and on others by means of adapter



CHUCK JAWS adjust for variation in work.

and ground pins. The plate on the face of the chuck is hardened and ground.

**Description** — The chuck body is made for direct mounting on American standard spindle noses, but it can be mounted on any spindle by means of adapter. These two jaw chucks are made in various sizes and are furnished for second-operation work, which must be concentric with the locating surface within extremely close limits. Detailed information on request regarding "Airgrip" compensating chucks.

ANKER-HOLTH MFG. CO., Dept. CP, Port Huron, Mich.

When inquiring specify CP A456 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944

# WAR DEPENDS ON RUBBER— WaterFOG

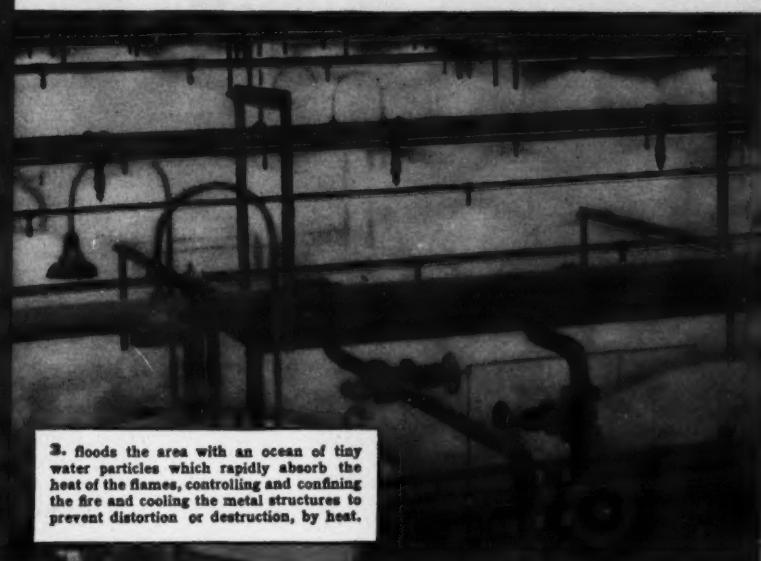


1. A tank containing vapors of highly flammable exports from these large buildings and storage insulation tanks. A spark... and the entire area of this important synthetic rubber plant would be devastated with destruction.



2. . . . the fast burning synthetic rubber plant is protected by the most effective method of moisture and cooling now in highly dangerous vapor areas. Release of WaterFOG (no system, no operation, to this circuit) . . .

SYNTHETIC  
RUBBER  
depends on . . .



3. floods the area with an ocean of tiny water particles which rapidly absorb the heat of the flames, controlling and confining the fire and cooling the metal structures to prevent distortion or destruction, by heat.

## Rockwood WaterFOG strips flammable vapors of their threat

**Uses** — This two-jaw compensating finger type chuck has jaws so designed that either one can be pulled in farther than the other to compensate for variations in the thickness of the work. The chuck is arranged so that the work is located from a finished round shoulder on the bottom of the casting and by two hardened

The WaterFOG systems may be

operated simultaneously, separately, or in any combination. A WaterFOG curtain between every other row of tanks goes into action whenever the system on either side starts operating. Thus protection is provided over, around and under every tank.

WaterFOG — created by impinging streams of water from Rockwood nozzles — is effective on flammable liquid or vapor fires where spray and solid streams

are frequently unsafe. It absorbs heat faster, retards vaporization, doesn't splash. Both Underwriters' Laboratories and Associated Factory Mutuals approve Rockwood WaterFOG installations of fixed piping. WaterFOG nozzles for hose lines also available. Write for Bulletin 123.

**ROCKWOOD SPRINKLER COMPANY**  
76 Harlow Street, Worcester 5, Mass.  
Specialists in Fire Protection Engineering, Equipment and Installation since 1907

TYPICAL WaterFOG APPLICATIONS	
dryers	mixing and boiling
degreasing machines	kettles
coating machines	spreaders
churn rooms	reactors, etc.

*Water Engineered by Rockwood  
Cools. Confines. Smothers Oil Fires*

ROCKWOOD  
WaterFOG



When inquiring specify CP A457 . . . see information request blank, pgs. 2-3

Page 91

# How To Improve Vacuum Processes



Learn how the maintenance of constant high vacuum with high volumetric efficiency effects important product improvements in drying, distillation, impregnation, deaerating, packing, molding, testing and other processes.

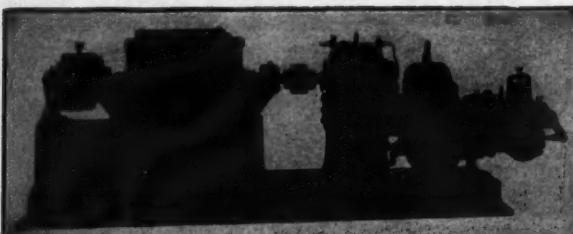
Learn about the unique design of Beach-Russ Type RP High Vacuum Pumps and what it means in faster, safer vacuum work at lower pumping and power costs.

Write for Catalog No. 80

**BEACH-RUSS COMPANY**  
46 CHURCH ST. NEW YORK, N. Y.

When inquiring specify CP A458 — see information request blank, pgs. 2-3

*Secure* **CONSTANT VOLUME**  
at all pressures



With a Pottstown Rotary Positive Displacement Type Blower, variations in pressure do not affect the constancy of volume.

These blowers are designed and built for long and satisfactory service. And because they have no wearing parts they require no internal lubrication and keep maintenance expense at a minimum . . . write for free descriptive bulletin.

If maintaining constant pressure at all volumes is your requirement, investigate the Allen Billmyre centrifugal type Turbo Blower. Bulletin on request.

**ALLEN BILLMYRE CO., 445 Fayette Avenue, Mamaroneck, N. Y.**

**POTTSTOWN**  
ROTARY POSITIVE DISPLACEMENT  
**BLOWERS**

When inquiring specify CP A459 — see information request blank, pgs. 2-3

Page 92

## PRODUCTION

### Unit for Automatic, Continuous Liquid-Gas Separation

For air and gas lines; used with pneumatic tools, vapor quench lines

**Uses** — For the automatic and continuous removal of condensate (droplets, slugs or mist) — adaptable to air and gas lines up to 1 1/4 inch pipe size and normal line pressure. Now being used in connection with pneumatic tools, atmosphere gas generators, compressors, vapor quench lines and spray and blast equipment.

**Features** — No moving parts are involved, and no cocks, traps or shut-offs are required in the drain line which is open to the atmosphere.

**Description** — Action is entirely automatic and continuous through two porous ceramic tubes, one inherently water repellent, the other water permeable but air impervious. Compressed air entering this device known as the "Liquijector" passes through the first and water repellent tube where it is stripped of moisture. The action is by coalescence of droplets on the surface of this tube, a coarse ceramic material with an average of 50,000 pore openings per square inch, each so small that the pressure drop across the tube is insufficient to permit water passage against the resisting diaphragm-action of its surface tension. The coalescent moisture drops to the bottom of the tube where it passes through the second tube (without loss of air) to outside atmosphere. This second tube is constructed of microporous porcelain, with an average of 720 million pore openings per square inch, and (being constantly wet by its wick action) constitutes a perfect air seal up to the rated

**ALL IN THE SAME PACKAGE**



with

## SECURITY

This application shows how Signode adds rigidity to a light lumber crate, affording full adequate protection for a shipment of steel shelving.

- PACKAGES • CRATES
- CARTONS • SKIDS
- BUNDLES • BOXES

Signode Methods of bulk-binding are widely used in the movement of carload shipments.

Write for a descriptive booklet explaining Signode applications to a great variety of peacetime products.

**SIGNODE** STEEL STRAPPING CO.

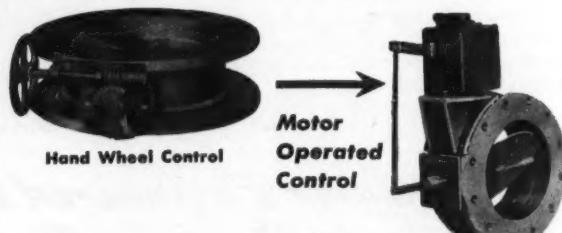
2658 N. Western Ave., Chicago 47, Illinois

Brooklyn, N. Y.: 391 Furman St. • San Francisco, Calif.: 477 Bryant St.

When inquiring specify CP A461 — see information request blank, pgs. 2-3

**MANUAL OR AUTOMATIC** **Easy Control Quick Shut-Off of Air • Gas • Liquids**

Rockwell Valves give dependable regulation and positive shut-off of process air, gases, liquids. Efficient, easy to install. Threaded or flanged. Sizes 1" to 48"; of any metal. Any manual, motor solenoid or hydraulic control. Get catalog 406.



**ROCKWELL VALVES**  
SLIDE and BUTTERFLY  
FOR AIR • GAS • LIQUIDS • SOLIDS

**W. S. ROCKWELL COMPANY** 56 Church Street New York 7, N. Y.

When inquiring specify CP A460 — see information request blank, pgs. 2-3

**Elevate Materials the MODERN WAY!**

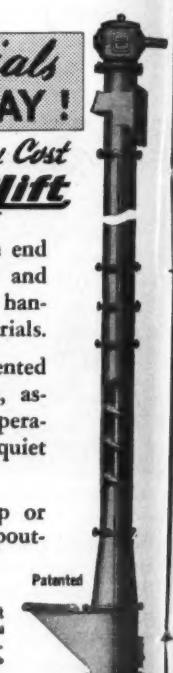
**Save Time • Labor • Space and Cost**  
**"HAMMOND" Screw-Lift**

The "Hammond" Screw-Lift puts an end to cumbersome elevating methods and produces outstanding results in the handling of any free-flowing bulk materials.

Built in tubular sections with patented stabilizer bearings at each junction, assures perfect alignment, smooth operation with no deflection, resulting in quiet operation under load or empty.

Elevates to any height — with top or bottom drive, and any feeding or spouting arrangement. Easy to install . . . easy to maintain.

Type "A" Unit  
with control  
motor  
and drive  
available.



Write for Analysis  
Form M-500-2.

**Screw Conveyor Corporation**  
111 HOFFMAN ST. HAMMOND, IND.  
ENGINEERS MANUFACTURERS

When inquiring specify CP A462 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

limit working pressure of the unit. This rated pressure may be manipulated to use specifications. The first perfected and smallest unit (1-150-1) accommodates lines up to  $\frac{3}{8}$  inch pipe size with line pressures up to 100 psi. Other units soon available. Complete information on request.

SELAS CORP. OF AMERICA, Erie Ave. & D St., Philadelphia 34, Pa.

When inquiring specify CP A463 — see information request blank, pgs. 2-3

### Portable Inclined Belt Piler

*Can project into car or truck without interference, adjustable either from floor or top of pile*

**Uses** — For loading, unloading, stacking, cartons, cases, bags.

**Features** — An entirely different method for lowering and raising the carrier frame is used on this machine. The adjustable part of the frame is fully counterbalanced. It can be adjusted from the floor or from the top of the pile. The absence of all supporting structures under the adjustable boom makes it possible for this part of the piler to project over the pile or into car or truck without interference.

**Description** — This portable piler is made in three sizes with the high end of the carrier adjustable up to  $7\frac{1}{2}$ ,  $8\frac{1}{2}$  and  $9\frac{1}{2}$  feet which provides for stacking of commodities up to 12, 13, or 14 feet. It can handle individual commodities up to 100 pounds or a total uniformly distributed load of 25 pounds per foot. The piler is particularly useful in crowded areas. It is entirely self-contained, with the power mechanism mounted on the base of the machine. Cable is provided for plugging into any convenient electrical outlet.

STANDARD CONVEYOR CO., Dept. CP, North St., St. Paul, Minn.

When inquiring specify CP A464 — see information request blank, pgs. 2-3

### Heavy Duty Oil Field Power Pump

*Easily dismantled; liners removable; liquid ends available in commercial alloys*

**Uses** — Heavy duty design for oil field service.

**Description** — The frame is heavily ribbed iron casting; the liquid end is made from very fine grain, controlled cast iron. Gears are continuous tooth herringbone, and pinion is forged integral with the shaft, which extends to both sides for connection to driver. Pinion shaft floats on double row Timken roller bearings while crank shaft also turns in Timken roller bearings. Crank bearings are adjustable by means of shims, and this cap does not support the weight of the bearings, the crankshaft and gear, as these are supported in a separate housing, purposely made larger for easy insertion of these moving parts. Consequently this pump is easily dismantled. The liquid piston rod can be removed from the back of the crosshead by removing piston rod and stuffing box in the power frame. The liquid end is a duplex side pot type with a suction on either side. The valve areas are ample and pot caps are sealed with metal covered gaskets, the same construction as used in cylinder heads. Liners are removable. Liquids ends of these models are available in commercial alloys depending on requirements.

McGOWAN PUMP DIV. (Leyman Mfg. Co.), Dept. CP, 18 Central Ave., Cincinnati 2, Ohio.

When inquiring specify CP A465 — see information request blank, pgs. 2-3

SEPTEMBER-OCTOBER, 1944



## The TEST-TUBE TESTIFIES!

**R**ESEARCH is the backbone of our business. Our celebrated "continuing studies" in industrial dermatitis have placed PLY products first in their field. That's because we translate the testimony of the test-tubes into products that do the job best! Our laboratories are constantly at *your* disposal . . . to solve problems peculiar to your specific operation. The index of our progress is read in the number of special formulae we have prepared to guard against unusual combinations of skin hazards. The substantiation of claims made for PLY—proven both in the laboratory and on-the-job—is in its continued use by more and more of the nation's leading industries.



PLY LIQUID PROTECTION

Write for booklet, "The Answer to Industrial Dermatitis"

### THE MILBURN COMPANY

Pioneers of Skin Protection in Industry

3246 E. Woodbridge • Detroit 7, Michigan



PLY CREAM PROTECTION

When inquiring specify CP A466 . . . see information request blank, pgs. 2-3

Page 93

**Big Tubes — Little Tubes —  
Straight Tubes — Curved Tubes**



**There's a style and size of  
AIRETOOL Tube Cleaner  
for every job!**

There's an Airetool Tube Cleaner to do the job more quickly and thoroughly in almost every type of boiler and processing tubes of  $\frac{1}{4}$ " to 24" I.D. New Form Cutters, developed to work fast without tracking, will not damage tubes when properly used. Airetool's 28% more powerful motor starts fast and can be loaded down to 50 rpm without stalling.

**WRITE FOR BULLETIN**

**AIRETOOL** MANUFACTURING COMPANY

500 Airetool & Yost-Superior Factory Bldgs.  
Springfield, Ohio

When inquiring specify CP A467 — see information request blank, pgs. 2-3



Dust created by grinders in the plant of a large pharmaceutical company is thoroughly filtered from the air in the Sly Dust Filter shown above. This keeps the plant spick and span, saving materials and providing good working conditions. • This is but one of over 5000 installations in operation today. Sly Dust Filters are collecting all kinds of dust in 57 industries. What is your dust problem? Ask for Bulletin 98.

**SLY**

**THE W. W. SLY MFG. CO.  
4754 TRAIN AVE., CLEVELAND 2, OHIO  
INDUSTRIAL DUST CONTROL**

When inquiring specify CP A468 — see information request blank, pgs. 2-3

## PRODUCTION

### Cleaner for Rust and Tarnish

*Used on tools, bottles, parts and equipment*

**Uses** — For use in rust removal. For use on chrome, nickel, steel, iron, copper, etc. May be used in surface cleaning with brush or cloth or in immersion cleaning in glass, crockery and rubberlined receptacle.

**Description** — Safe to use and handle. Non-inflammable and free from muriatic, sulfuric, oxalic, nitric acid or cyanide. Dries rapidly in surface applications. Literature on request.

M. B. PRICE ASSOCIATES, Dept. CP, Empire State Bldg., New York, N. Y.

When inquiring specify CP A469 — see information request blank, pgs. 2-3

### Adhesive Data Sheet

Step by step recording of necessary information required for proper analysis of adhesive problems is made easy with a new questionnaire offered by adhesives manufacturer. Over 400 chemicals and raw materials are used in compounding modern adhesives and the working qualities can be adjusted to provide extremely accurate operation in industrial application. Correct data can narrow the selection of an adhesive to a fine point resulting in higher standards of performance. This adhesive problem data sheet designed for this purpose is available on request.

PAISLEY PRODUCTS CO., Dept. CP, 1770 Canalport Ave., Chicago 16, Ill.

When inquiring specify CP A470 — see information request blank, pgs. 2-3

## MOISTURE ENGINEERING

with the KATHABAR System  
automatically and accurately provides

THE  
PROPER  
HUMIDITY

—independently of temperature—

for processing operations in the  
manufacturing of:

DRUGS, PHARMACEUTICALS, CHEMICALS,  
FOODS, OR ANY PRODUCT OR MATERIAL  
AFFECTED BY EXCESS HUMIDITY  
CONDITIONS... Write for information.

SURFACE COMBUSTION • TOLEDO 1, OHIO

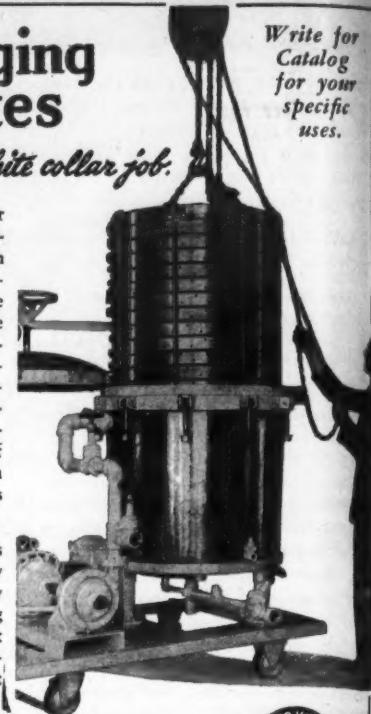
**KATHABAR** System of  
HUMIDITY CONTROL  
(ADVANCED AIR CONDITIONING)

When inquiring specify CP A471 — see information request blank, pgs. 2-3

## Changing plates

*Almost a white collar job.*

Write for  
Catalog  
for your  
specific  
uses.



Sparkler filter plates are interchangeable, which means the separate plates of one nest may be cleaned and prepared while another nest is being used in production. Eliminates the mess of cleaning half a dozen machines that are too small.

Sparkler Filters clarify or purify any fluid in any quantity, using any filter aid that produces the finest results at greatest speed.

**SPARKLER MFG. CO.**  
243 Lake Street  
MUNDELINE



ILLINOIS

When inquiring specify CP A472 — see information request blank, pgs. 2-3

## ALOYCO VALVES

MADE OF  
SOLID STAINLESS  
FOR MAXIMUM  
CORROSION RESISTANCE

Only solid stainless steel can successfully withstand the combined conditions of corrosion, velocity, pressure and impact present in acid or alkaline fluid and vapor lines. That's why Aloyco Valves are made of solid stainless steel throughout — not plating or trim alone. The choice of alloys available permits meeting practically any corrosive condition. The complete selection of models and sizes for pressures up to 600 lbs. gives complete freedom in planning piping layouts. Supplied for new construction under high priorities; for maintenance and repairs under M.R.O. regulations. Write today for catalog.



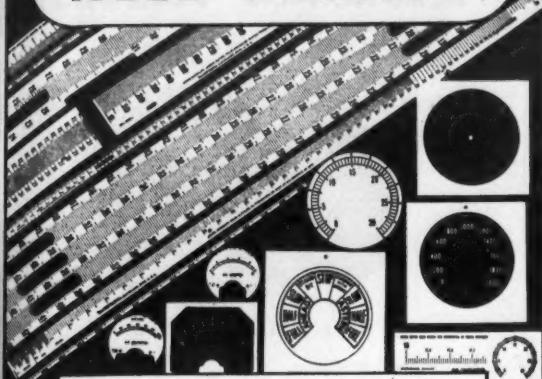
**ALOYCO**  
Stainless Steel  
VALVES and FITTINGS  
ALLOY STEEL PRODUCTS COMPANY, INC.  
100 WEST ELIZABETH AVENUE — LINBEN, NEW JERSEY

GATE VALVES • GLOBE VALVES  
Y VALVES • CHECK VALVES  
LEVER THROTTLE GATE VALVES  
TANK VALVES  
SCREWED FITTINGS  
FLANGED FITTINGS  
GAUGE GLASS FITTINGS

When inquiring specify CP A473 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## NEED SCALES?



### WE CAN SHIP THEM PROMPTLY

1. In any quantity—Maymer Syl-O-Ette scales are economical in small, as well as large quantities.
2. In unusual sizes—one order recently called for 300 scales 1/4" wide by 84" long; another for scales 32" wide by 66" long.

Whatever your requirements, write us. The uniform accuracy of Maymer scales, reasonable price, and speed of shipment will please you.

**MAYMER**  
CORPORATION

10896 BEREAL ROAD  
CLEVELAND 2, OHIO

When inquiring specify CP A474 — see information request blank, pgs. 2-3

## AN Economical INVESTMENT

The proved accuracy of Roots-Connersville Positive Displacement Meters is maintained year after year without adjustment. The basic design, careful workmanship and absence of internal contact result in low differential pressure absorption and negligible maintenance expense. Compact construction and large measuring capacity of a single "R-C" Meter eliminates need of expensive multiple installations requiring complicated manifolds and valves.

**ROOTS-CONNERSVILLE  
BLOWER CORP.**

409 Richland Ave.  
Connersville, Indiana

The type of "R-C" Gas Meter shown in the photo is extensively used in the Chemical and Process Industries.

Write for Bulletin No. 40-B-13



**GAS METERS**

When inquiring specify CP A475 — see information request blank, pgs. 2-3

EW SEPTEMBER-OCTOBER, 1944

## PRODUCTION

### Camouflage Enamel For Food Cans

For milk cans and other packed cans that must be protected against corrosion; makes can invisible from air

**Uses** — To meet finishing requirements of Army specifications No. CQD 200 A.

**Description** — Protects food cans from corrosion and prevents visibility from the air. Applied either by spraying or dipping. Air dries in 8-10 minutes; and if air is heated to approximately 175° F. is caused to flow over the cans as they come out of the dip tank or spray booth, drying time is cut to 3-6 minutes. Good adhesion, does not chip and fall off into contents of can when it is opened. A & W No. 47-15 Camouflage Enamel.

**AULT & WIBORG** (Div. Interchemical Corp.), Dept. CP, 350 Fifth Ave., New York 1, N. Y.

When inquiring specify CP A476 — see information request blank, pgs. 2-3

### Filling Compound is Resilient, Firm and Penetrating

Withstands wide range of temperatures; mixed from two parts just prior to use

**Uses** — This filling compound designated by the maker as S-182 for magnet cases, potting small transformers and for general filling work provides a material of considerable resiliency.

**Features** — Its great internal cohesion minimizes the danger of disintegration and severe stresses.

**Description** — The compound is supplied in two separate parts — a viscous liquid (S-182A) and the second of low viscosity (S-182E). These must be mixed prior to use as they react slowly at room temperatures. However, the mixture retains sufficient liquidity for pouring for a period of four to five hours. Though heavy, the compound pen-

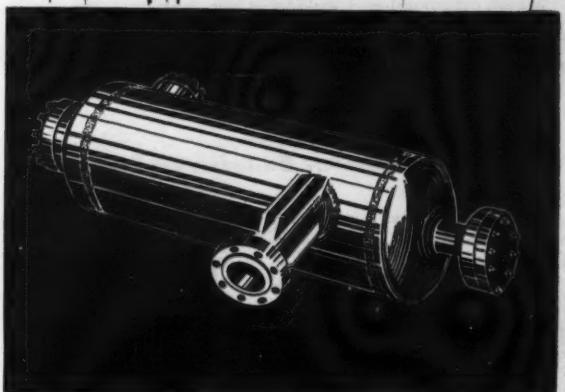
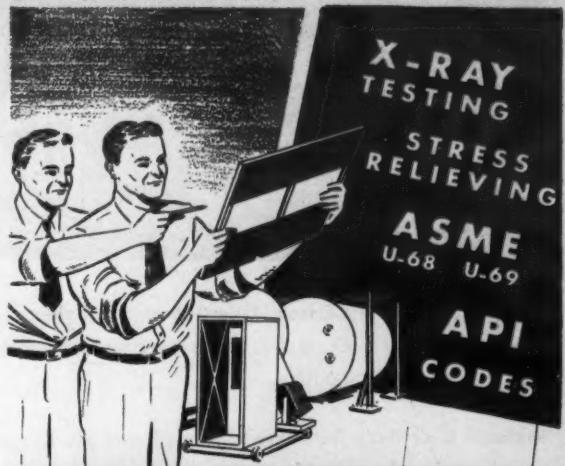


RESILIENCY characterizes filling compound

trates into small interstices. At 60-70 degrees C. the compound begins to set in about one hour and becomes well dried over night. When baked at 105-110° C. it reaches its maximum hardness in one to six hours depending upon the mass involved. Further baking of the compound has no marked effect. S-182 compound has a high dielectric strength, a low coefficient of expansion and is water resisting and oil proof. It withstands high temperatures without softening and does not become brittle at extremely low temperatures.

**STERLING VARNISH CO.**, Dept. CP, 129 Ohio River Blvd., Haysville, (Suburban Pittsburgh), Pa.

When inquiring specify CP A477 — see information request blank, pgs. 2-3



## National PERFECTION IN WELDED PRODUCTS

from OPEN HEARTH, STAINLESS, ALLOY  
and CLAD STEELS  
RESEARCH TO COMPLETED PRODUCTION

Whether confidential blueprints are submitted or the plans for your special equipment are developed by **National** engineers—unexcelled National manufacturing facilities and craftsmanship will produce precision-built, dependable finished products. National fabricates Open Hearth Steel and Alloys from light gauges up to 1 1/2", with 60 ton capacity.

National engineers and facilities are available NOW—let us cooperate in solving your difficult fabricating problems.



When inquiring specify CP A478 — see information request blank, pgs. 2-3

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This unit is fabricated from type 304 stainless steel, 16 gauge, is 20' and 3' square. It is used in connection with the cellophane industry.

Material is all made from sheets, formed, and the flanges are all machined and welded in our shop.

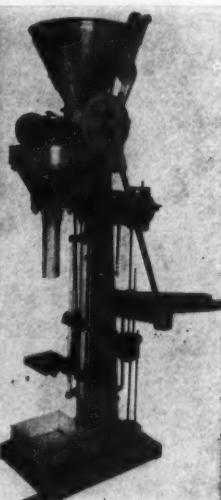
25 years of fabrication with all grades of alloys is available for special work.

**Write for Bulletin CP 30**

**ALLOY MANUFACTURING CO.**  
30th Street      Pittsburgh, Pa.

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For  
Faster, Better  
**PACKAGING**  
**OF POWDERS**  
Up to 50 lbs.!



**T**HE Triangle Model SN Auger Packer illustrated is a rugged, flexible, sensitive unit in wide use for packaging powdered chemicals, drugs and foods. Fills bags, tins or other containers. Adjustments and operation are fast and easy. Heavy construction and simplicity insure long life with virtually no maintenance. Unskilled operators can quickly reach maximum output of up to 20 packages per minute on smaller sizes. Machine will accommodate packages from 1 lb. up to 50 lbs. For full details write today outlining your requirements.

Other models  
for higher production.



**TRIANGLE PACKAGE MACHINERY CO.**

917 NO. SPAULDING AVENUE, CHICAGO

OFFICES IN PRINCIPAL CITIES, UNITED STATES AND CANADA

When inquiring specify CP A480 — see information request blank, pgs. 2-3

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## PRODUCTION

### Two Gallon Barrel Plating Unit

For precious metals and others such as brass, copper, etc.; tub easily removed



UNIT plates small parts

of the anode and cathode are adjustable. Folder gives complete description.

PRECIMET LABORATORIES, Dept. CP, 64 Fulton St., New York, N. Y.

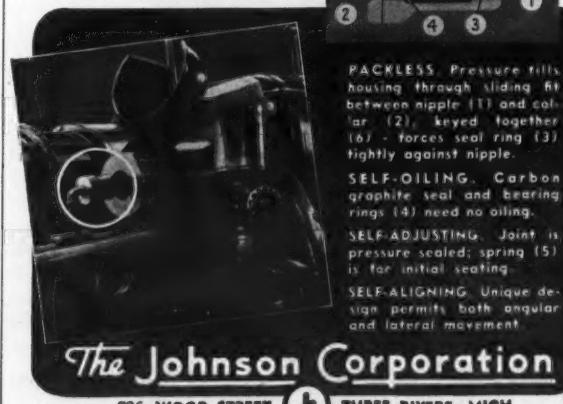
When inquiring specify CP A481 — see information request blank, pgs. 2-3

### Finding new uses every day—

• Shown below is one of the latest applications of the Johnson Joint — on a turret lathe. It admits coolant or cutting oil into the hollow spindle—makes it possible to provide coolant directly behind cutting tools when machining inside surfaces of internally bored castings.

Industry is constantly finding new uses for this packless stuffing box—in paper and textile mills, steel rolling mills, synthetic rubber plants—wherever steam or liquids must be admitted to rotating machine parts. We will be pleased to help you investigate its possibilities for your problems.

Write for Information



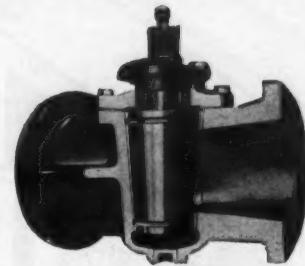
**The Johnson Corporation**

826 WOOD STREET

THREE RIVERS, MICH.

When inquiring specify CP A482 — see information request blank, pgs. 2-3

## NORDSTROM Lubricated VALVES



### For Safest Chemical Control

Lubrication within a Nordstrom Valve seals the ports against internal or external leaks. The plug is constantly seated on a pressure film of lubricant. Sizes,  $1\frac{1}{2}$ " to 30" for all temperatures and pressures. Made of Semi-Steel, Nordco Steel and special alloys for all chemical services.

### KEEP UPKEEP DOWN

#### MERCO NORDSTROM VALVE CO.

A Subsidiary of Pittsburgh Equitable Meter Co.

Main Offices: 400 Lexington Ave., Pittsburgh 8, Penna. Branches: Atlanta, Boston, Brooklyn, Buffalo, Chicago, Columbia, Houston, Kansas City, Los Angeles, New York, Oakland, San Francisco, Seattle, Tulsa.

When inquiring specify CP A483 — see information request blank, pgs. 2-3

## Stokes MICROVAC Pump HEART OF HIGH VACUUM SYSTEM

HIGHER VACUUM  
in the Low Micro Range

GREATER  
VOLUMETRIC  
EFFICIENCY  
LOW  
POWER  
REQUIREMENT

FIVE SIZES: from 15  
to 225 cu. ft. per min.

F. J. STOKES MACHINE CO.  
8974 Tabor Rd., Phila. 20, Pa.

## Stokes High Vacuum PUMPS • GAUGES • EQUIPMENT

When inquiring specify CP A484 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

## PRODUCTION

### 250,000 Food Bricks Per Day Made on Press

Weights 33 tons and has adjustable piston arms pressure from 0 - 5000 psi



PRESS showing upper and lower piston arms

**Uses** — The giant press illustrated here produces one pound bricks of a soup mix for use by civilians in liberated areas. The press is adjustable as to pressure and thickness of brick and available with dies of shapes and sizes to suit requirements.

**Features** — The machine is easily adjustable during motion (slightly retarded) which is a distinct advantage in view of heavy production.

**Description** — A hopper discharges the material into the various briquetting chambers which are in the circular member visible in the accompanying picture. This circular member rotates with the press. After each chamber is filled and contents leveled off to the top of the chamber by the scraper arm, the upper and lower dies compress the material in the chamber as the press rotates. The lower piston ejects the compressed material as the upper piston is raised several inches above the chamber top. The bricks after being completely compressed are deposited on the conveyor belt to be seen in the picture on the cover. The press is operated by a thirty horsepower motor through reduction gears. The pistons are operated by a cam device. Pressure of piston arms may be from 0 to 5,000 pounds per sq. inch. The size of the bricks produced is 3 x 3 x 2 inches. The pressure generally used in producing these bricks is about 1,500 p.s.i. on this largest of rotary presses.

MAGUIRE INDUSTRIES, Dept. CP, 500 5th Ave., New York, N. Y.

When inquiring specify CP A485  
— see information request blank, pgs. 2-3

For more information on product at right, specify CP A486  
— see information request blank between pages 2-3



The above belt conveyor installation handles material up a steep incline to the storage building at the right from which material may be delivered to cars, trucks or an auxiliary storage pile. Belt is equipped with PACIFIC type carriers. Movable hopper complete with grizzly bars, moves along on rails, loading conveyor at any point.

## TO TAKE MATERIALS FOR

# A FAST, LOW-COST RIDE...

The **RIGHT**  
Equipment  
Engineered by S-A  
Into the  
**RIGHT** System

• Many different methods and machines have been developed to handle materials. But to discover the *one method and the exact equipment* best suited to each of your specific handling problems calls for this three-fold Stephens-Adamson aid:

(1) Access to S-A's complete line of manufac-

tured machinery units — conveyors, elevators, feeders, transmission equipment, etc. (2) The services of skilled S-A engineers in combining those units into efficient systems. (3) S-A's 43 years of exclusively material handling experience.

Have the advantage of S-A assistance on your material handling operations. Write for further information.

**STEPHEN S-A DAMSON**  
MFG. CO., LOS ANGELES, CALIF. \* BELLEVILLE, ONT.

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**TAYLOR** - Standard of Accuracy



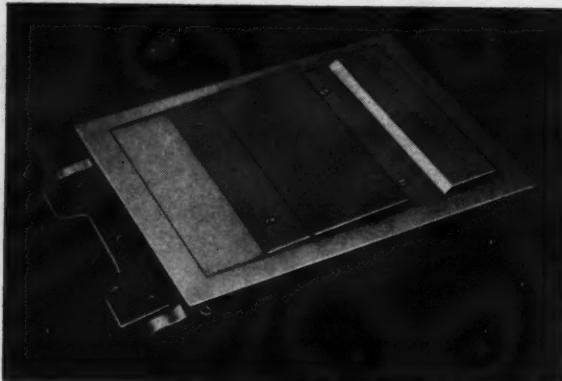
## Announcing THE NEW POLY PHOSPHATE COMPARATOR

Provides a rapid, simple and accurate method of analysis where low concentrations of poly phosphates (meta, pyro, sepa, etc.) are used in water conditioning to prevent feed line deposition, to stabilize municipal water supplies and to reduce corrosion. Outfit, including comparison block containing 8 standards, 0, 0.5, 1, 2, 4, 6, 8 and 10, 2 cells, necessary accessories and reagents, comes in compact wooden carrying case. A determination requires about 20 minutes. Price, complete . . . \$19.00 F.O.B. Baltimore.

All Taylor liquid color standards carry an unlimited guarantee against fading. See your dealer

**W. A. TAYLOR AND CO.**  
7306 YORK RD. • BALTIMORE 4, MD.

When inquiring specify CP A487 — see information request blank, pgs. 2-3



NIAGARA PERMAFLUX spout type magnets are built of Alnico, the strongest magnetic alloy known. Their exclusive "double gap" construction with recessed surface insures effective removal of magnetic impurities from a wide variety of products. Because they require no electrical current and have no moving parts to wear out they furnish dependable and economical protection.

Write today for descriptive literature.

**RICHMOND MFG. CO.**  
LOCKPORT, N. Y.

When inquiring specify CP A488 — see information request blank, pgs. 2-3

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## PRODUCTION

### Cold Padding Glue — Red or White

Applied by brush or spray gun; very flexible

**Uses** — As cold padding glue. Serves as efficient replacement for prewar rubber latex compounds.

**Features** — Very flexible but permits pads to undergo rough handling. Sheets tear off with clean, smooth edge.

**Description** — Furnished in red or white (natural color) in containers ranging from 1 qt. to 55 gal. drums. Ready to use and may be applied by water moistened brush, or dilutable with water for spray guns. For all papers, backing boards and operations on cloth and leather bindings. Named "Pliatab."

PAISLEY PRODUCTS, INC., Dept. CP, 1770 Canalport Ave., Chicago 11, Ill.

When inquiring specify CP A489 — see information request blank, pgs. 2-3

### Data on Allyl Resin Monomers

Bulletin describes Allymer C. R. 39 which is a monomeric liquid of low volatility which gradually solidifies to a hard insoluble, infusible, glass-clear solid when heated in the presence of a peroxide catalyst. No gaseous or other by-products are evolved. These thermosetting characteristics render this Allymer well suited to use in casting transparent or other objects, in impregnation processes and in the production of laminates by very low or contact pressure methods. The name "ALLMYER" designates a complete of Allyl Resin Monomers.

PITTSBURGH PLATE GLASS CO., Dept. CP, 632 Dusquene Way, Pittsburgh, Pa.

When inquiring specify CP A490 — see information request blank, pgs. 2-3

## Collect your heavy plant dusts and suppress the fines

Dust-laden air in chemical and processing plants up to a temperature of 1800° F. can be cleaned up efficiently and economically by a Whiting Wet-Dry Type Hydro-Clone. The dry-clone collects the heavy dust in dry form, and the disintegrator in the hydro-clone suppresses the fines as sludge. The heavy dust particles can be returned for further processing. Any valuable sludge can be dewatered and reclaimed by means of the Hydro-Clone sludge dewatering tank (Bulletin FY-114).

There are no spray nozzles to clog, no cloth bags or screens to replace or clean. Whiting Wet-Dry Type Hydro-Clones are completely engineered for every dust control problem in capacities from 1,000 to 30,000 cu. ft. per min. Write today for Bulletin FY-117.

We also make other types for wetting all the dust. Send for Bulletin FY-111.



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"Wetting is True Suppression"

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## For Highest Quality Water STOKES ELECTRIC STILLS

with  
Automatic  
Overheat-Protection



CONTINUOUS DISCHARGE OF IMPURITIES.

TRIPLE VAPOR BAFFLES prevent entrainment.

LONG-LIFE, NON-CORROSIVE METAL AND PYREX GLASS CONSTRUCTION.

ECONOMICAL OF CURRENT AND WATER. Large Boiling Area and Counterflow Condenser.

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F. J. STOKES MACHINE CO.  
5974 Tabor Road Philadelphia 20, Pa.

**F.J. Stokes** WATER STILLS

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## Examine Your Filter's Performance in the Light of Future Needs

- Is your filter old or worn out?
- Have you developed new or improved products for which your existing equipment is unsuitable or uneconomical to operate?
- Have you considered how new developments in the art of filtration may improve your product or lower its cost of production?

Here at Shriver's we have been making many interesting discoveries about expanded uses for filter presses, especially on many materials never filtered before or difficult to filter in other types of equipment. We have learned how to employ some of the newer materials of construction, how to combine in one filter several operations which generally require separate pieces of equipment.

The Shriver Filter Press has long been graduated from its simple function as a pressure filter. It is a versatile, multiple purpose production machine that can recover solids, clarify, decolorize, wash, dry, extract, thicken, re-dissolve or cause oxidizing, reducing, catalytic or other reactions. There is a multitude of other applications at high or low temperatures and pressure worthy of your consideration.

Let us help you on your problem. The Shriver Laboratory is ready for that service — without obligation.

Write for Catalog

**T. SHRIVER & COMPANY, Inc.**  
846 Hamilton St. • Harrison, N. J.

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CHEMICAL PREVIEW



SEP

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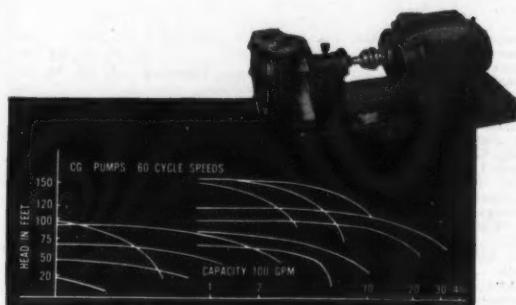
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## HOW TO GET THE RIGHT CHEMICAL PUMP FOR THE JOB

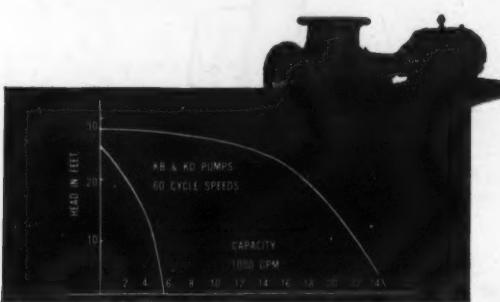
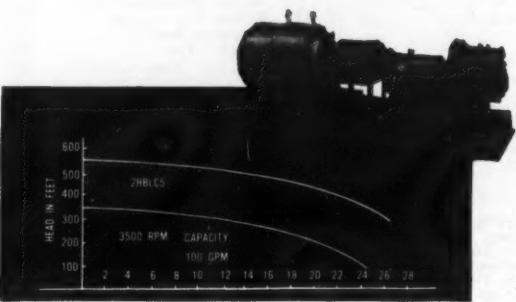
Worthington Offers the Broadest Range of Standard Corrosion-Resistant Pumps in the U. S.



Type CG (Worthington) centrifugal pump, open impeller. Over 6000 in service.



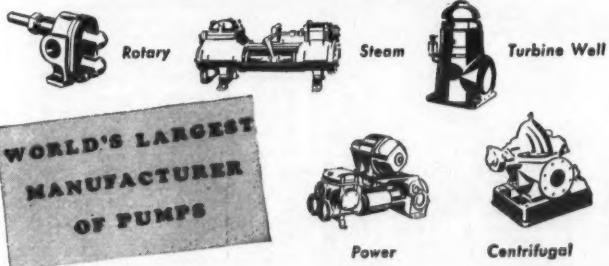
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**WORTHINGTON** BEHIND THE NAME



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WORTHINGTON PUMP AND MACHINERY CORPORATION

Centrifugal Pump Division

Harrison, N. J.

My chemical pumping problem is . . .



CPA-15

Send "Worthington News", on the subject of corrosion resistance

Name . . .

Company . . .

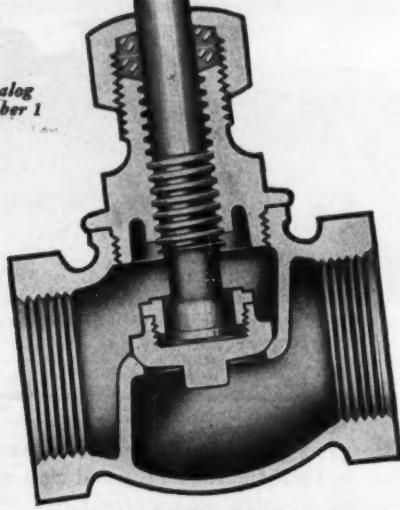
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# CRANE NO. 1

Standard

## BRASS GLOBE VALVES with Brass Disc

Catalog  
Number 1



- Working Pressures: 125 pounds steam; 200 pounds cold, non-shock.
- Recommended for general service in steam, water, oil and gas lines.
- Can be repacked under pressure when wide open.

YOUR PRIORITY AND END USE may entitle you—now—to these valves and other items in the complete Crane line. Your Local Crane Representative will gladly advise you. Crane Co., General Offices: 836 So. Michigan Ave., Chicago 5, Illinois.

Anything for Piping Systems— You Can Get It From Crane

# CRANE

VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

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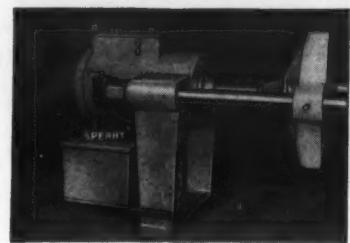
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## DOUBLE ACTION Closing Device



### Saves Time and Labor in Filtering

The Sperry EHC Closing Device was developed for quicker, safer and easier operation of Sperry Filter presses. It actuates the movable press head backward and forward . . . so simply and smoothly that a girl can operate it. Powered by electricity, it increases production by speeding the filtration cycle. It may be applied to any filter press with minor alterations. On Sperry presses, it is only necessary to substitute it for the crosshead and connect to the electric system.

Sperry Presses, Filtration Media and Closing Devices are furnished for all industrial filtration needs. Write for free booklet . . . or consult our engineers on your requirements, without obligation.

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**They're Tough—**

**—because they have tough jobs to do!**

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**CHEMICAL PREVIEW**

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It's just  horse sense that a "horsepower" Steam Turbine sized right for the job saves  metal for  war and  money for you while an  "Elephant Power" Turbine too big for the job wastes  both. **COPPUS** Blue Ribbon Turbines come in six frame sizes  from 150 H. P. down to fractional.  Each smaller size requires  less metal and is  priced less. The "Blue Ribbon" certifies prize-winning  **COPPUS** performance.



### COPPUS TURBINES

**Save Metal in Wartime — Will Save You Money in Peacetime**

Like all Coppus "Blue Ribbon" Products (blowers, ventilators, gas burners, etc.), the Coppus steam turbine is a precision-made product . . . controlled by Johansson size blocks . . . and every turbine is dynamometer-tested before shipment. More than 85% of all orders since 1937 have been repeat orders.

Write for Bulletin 135-9

**COPPUS ENGINEERING CORPORATION**  
539 Park Avenue Worcester, Mass.

Sales offices in THOMAS' REGISTER  
Other "Blue Ribbon" Products in  
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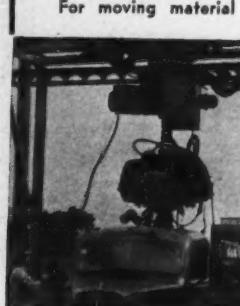
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## Material Moves Fast With Stearns Lifting Magnets

Monarch Machine Tool Co. gets fast handling of chips and shavings from briquetting machine to bins or truck with a Stearns Lifting Magnet.



Only one of many jobs efficiently and economically done by Stearns Magnets. You may have a similar problem in which we can be of definitely profitable assistance.



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### Takes Traffic Immediately

Use durable INSTANT-USE . . . a tough, plastic material which you simply shovel into hole — tamp — and run traffic over immediately. NO WAITING. Bonds tight to old concrete. Makes smooth, solid, heavy-duty patch. Withstands extreme loads. Keep a drum on hand for emergencies. Immediate shipment.



FREE TRIAL  
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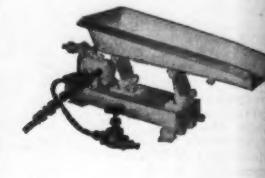
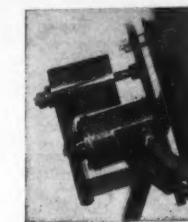
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WATER, AIR or OIL OPERATED

"Hydra-Pulse"

"Hydra-Pulse"

## VIBRATORS



Under those troublesome bins and hoppers to regulate their discharge by valve control of the power and of the rate of flow.

"EXPLOSION PROOF" — water, air or oil operated to suit the application—for use in hazardous atmospheric locations or handling explosive materials.

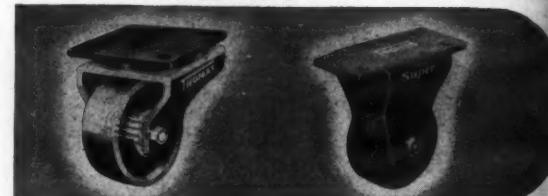
Also available as complete Feeder Machines, ready for operation—and as Packers and Jolters for increasing the net contents of containers.

Write us about your problem.

SYNTRON CO., 110 Lexington, Homer City, Pa.

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## THOMAS TRUCK of Keokuk



### THOMAS MAKES

### 4 WHEEL TRUCKS

### 2 WHEEL TRUCKS

### CASTERS

### RUBBER WHEELS

## SUPER CASTERS

- Formed Steel Construction
- Two Rows of Ball Bearings
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- Machined Wheel Face
- Grease Gun Fittings

The Thomas Super Caster is all that its name implies—Super in construction and performance under severe service where most casters are unsatisfactory. The Super Swivel fork is formed from one piece of  $\frac{1}{4}$ " plate, offset for added strength. Ball race cage and King bolt welded in place and all moving parts are hardened to move freely and resist wear. Write for new catalog No. 43.

THOMAS TRUCK & CASTER CO.

4448 MISSISSIPPI RIVER, KEOKUK, IOWA

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CHEMICAL PREVIEW

## Stokes High Vacuum PUMPS • GAUGES • EQUIPMENT

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## DO YOU HAVE A NEW SOLUTION?

Has a recent use of your equipment solved a difficult chemical process plant problem? The equipment may be new or from our standard line. For publication, data should state definitely (1) Nature of operation in question, i.e., cooking, cooling, mixing; (2) Difficulties involved such as control of temperature, product uniformity, lubrication or cleaning; (3) how was equipment used — in standard or modified form? (4) results, facts on savings in time, labor, increased production or similar cost factors or extent of product improvement. Address to the Editors.

### CHEMICAL PREVIEW

7 N. Michigan, Chicago 11, Ill.  
(area)

## DO YOU HAVE A NEW PRODUCT?

improved product, either plain or laboratory equipment . . . or a new improved material . . . of specific interest to the chemical process field? If you will submit detailed information including uses, specifications, performance, distinctive features, nature of accompanying photos, drawings or size of cut available, our Editors will consider it carefully for presentation to the 25,000 readers of this publication. There is no obligation. Write the Editors.

**CHEMICAL PREVIEW**  
737 N. Michigan, Chicago 11, Ill.

## That's Interesting

### Growing Pure Yeast

What is termed a pure yeast culture apparatus has been developed by Schwarz Laboratories, Inc., which they constructed entirely of stainless steel which tests indicate is harmless to yeast or wort. Brewers upon finding a strain of yeast producing beer of the desired taste and character want to have a constant supply of this same yeast. The apparatus makes this possible. Hot wort is introduced into a sterilizing cylinder, and from there passes to piping to the propagator where it is inoculated with the laboratory culture. The mixture is allowed to ferment completely, and in about ten days pure fresh yeast is ready to be introduced into the brewery operations. (Electromet Review).

### Urea Base Feed Compound Replaces Part of Scarce Protein Supplements

A new material containing urea, designed to supply some of the crude protein equivalent in mixed feeds for cattle and sheep is now being allocated to feed manufacturers. It can effectively replace part of the hard to get protein supplements, such as linseed meal, in the ration of ruminants. Crystal urea has been allotted to feed manufacturers for some time. As crystal urea tends to take up moisture and subsequently dry out into a hard mass, difficult to handle the Du Pont Ammonia Dept. has conducted research to develop a free flowing urea base compound. The feed compound has a light gray color and free flowing characteristics making it easy to handle and mix with other feed ingredients. (E. I. du Pont de Nemours and Co., Inc., Wilmington, Del.).

### Synthetic Ion Exchange Resins Increase Sugar Yields of Cane and Beet Operations

A process for the elimination of sugar juice impurities now removes from 60 to 80% of the non-sugars and 50 to 90% of the color from clarified sugar juices. Synthetic ion exchange resins make this possible. These resins (Amberlites) are applied with equal success to cane or beet sugar operations. Difficulties such as those arising from scaling of heating surfaces, ash content, excessive viscosity etc., are substantially eliminated or reduced. The quality of low purity fillmass handled in the sugar boiling operations can be reduced to as little as one sixth in some beet operations and to one third in raw cane sugar houses. By passing sugar juices through beds of these unique ion exchange resins the ionized salts are first "split" to their corresponding acids by the "hydrogen form" of the cation exchange resin. These acids in turn are removed by passage through the acid absorbent resin so that no free acidity remains. When the capacity of the ion exchanger for substituting hydrogen ions for the cations of the ash constituents has been exhausted the resin is regenerated and prepared for further use with a dilute of the acid. Likewise when the acid adsorbent resin can no longer completely adsorb free acids, it is regenerated with dilute alkali such as soda ash. The regenerate solutions are flushed to waste and the resins beds rinsed with water. (Resinous Products & Chemical Co., Philadelphia.)

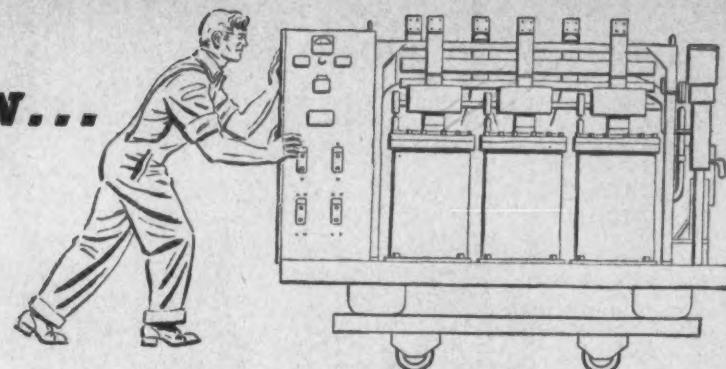
### Domestic Agar Production Being Expanded

Cutting off of Oriental supplies of Agar has of necessity greatly stimulated domestic production. We were formerly dependent upon outside sources for 92% of our total needs. Of this supply about 20% was used for the preparation of bacteriological culture media. Domestic production has expanded to a considerable extent and before the end of last year was meeting domestic bacteriological requirements. The U. S. Fish & Wildlife Service is engaged in agar investigations.

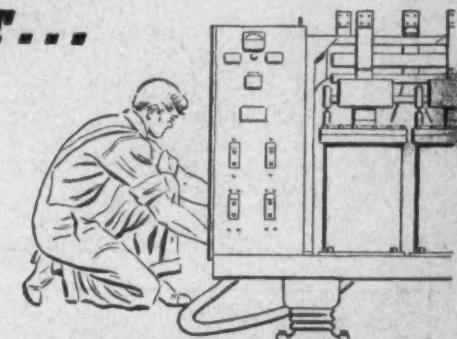
### Wire Winding Prevents Fragmentation of Gas Cylinders When Hit By Bullets

An ingenious method of preventing deadly "shrapneling" of the oxygen and carbon dioxide cylinders used for breathing and fire fighting purposes on military planes has been developed. Untreated cylinders can explode into pieces of shrapnel-like flying steel when hit by flak or machine gun bullets. The process consists of wrapping each cylinder tightly with high tensile steel wire so that a bullet leaves a clean hole with no fragmentation. (Walter Kidde & Co.).

## MOVE IT IN...



## CONNECT IT...



## FORGET IT



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The Ignitron supplies direct current 24 hours a day with no time out for maintenance. There are no commutators, brushes or collector rings that require maintenance and replacement periodically. Near 100% availability means minimum production delays and minimum stoppages in electrochemical processes.

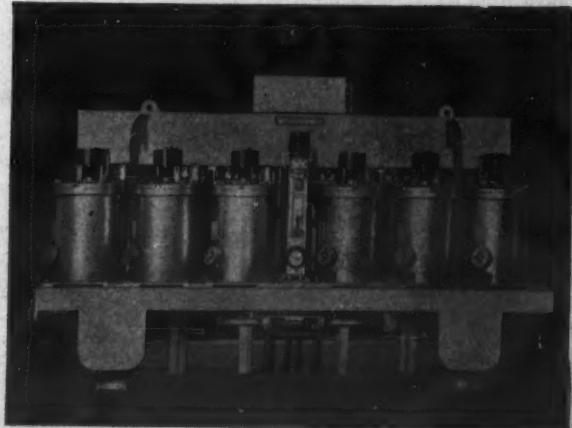
For more complete information about Ignitron Rectifiers, write for Book B-3024. Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa., Dept. 7-N. J-10261-2

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### IGNITRON RECTIFIERS



*Electronics at Work*



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HERE'S WHAT  
*non-porous*  
MEANS



• Many ceramic materials are classed as "non-porous" by their manufacturers. Our study of the subject convinces us that the difference between slight porosity and no porosity is the difference between disintegration of other materials and the unlimited long life of Lapp Porcelain—the capillary pressures and corrosive action of absorbed moisture. The Lapp test for porosity is the pressure chamber sketched above. A fragment of material is impressed with penetrating Fuchsite dye at 100,000 lbs. per sq. in. for many hours. Lapp Porcelain, glazed or unglazed, shows no trace of penetration.



# Lapp

## CORROSION-PROOF VALVES OF *Lapp Porcelain*

• Starting with a material which is itself completely corrosion-free and contamination-proof, Lapp design of valves provides that corrosive chemicals being handled shall come in contact only with surfaces of solid porcelain. Stems and bearing surfaces are precision lathe-ground, polished and lapped. This assures a tight seal and smooth operation with low packing pressure. A spring washer, compressed as the valve is closed, maintains sealing pressure under temperature variation and vibration. Hand wheel and quick-opening models, both angle and Y-type, diameter  $\frac{1}{2}$ " to 4". Catalog data and specifications on request. *Lapp Insulator Co., Inc., Chemical Porcelain Division, LeRoy, N. Y.*